



FLINT HILLS
CHRISTIAN
SCHOOL



As you progress through the grades, homework becomes a more rigorous part of school. Homework has a definite place in the educational progress and is an extension of what students learn at school. It is our hope that this Summer Packet will be a great place to start.

If you can, please assist your child by supporting them while they complete this Summer Packet. The attached work can be completed over the summer, but is not required. We look forward to working with each one of you in the next school year!

Reading: Read at least 4 books at your level and make a summary of the book.

Language Development: Included in the packet

Math: Included in the Packet

Have a great summer!

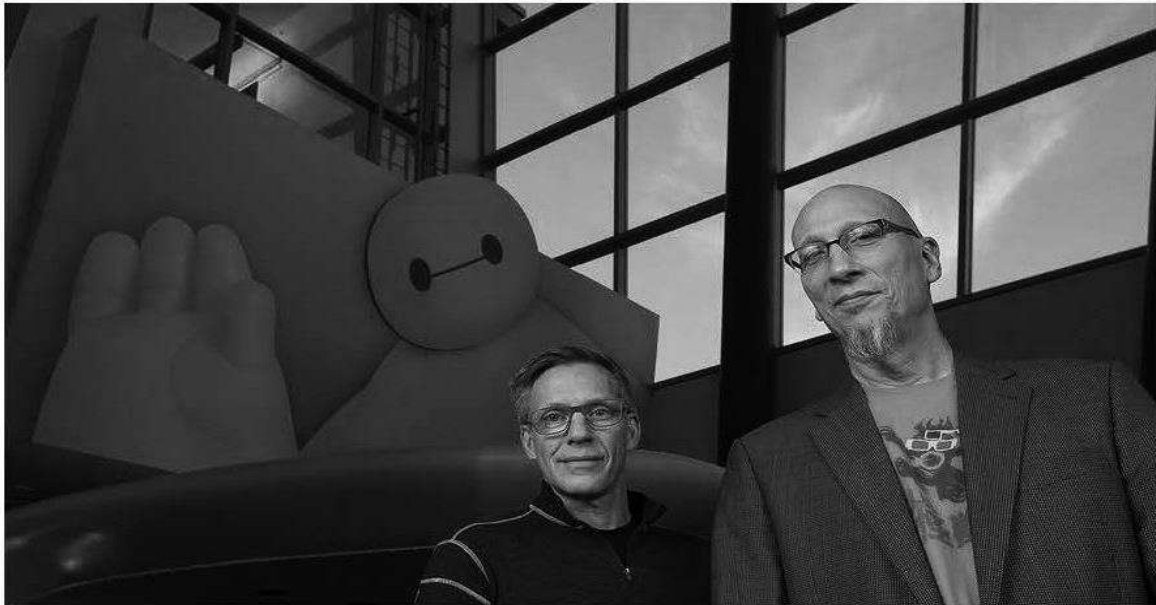
Your teachers at FHCS

Entering 6th Grade

In "Big Hero 6," a robot saves the day, software developers light the way

By Los Angeles Times, adapted by Newsela staff on 03.02.15

Word Count **756**



(Left) Andy Hendrickson, Disney Animation's chief technology officer, and Roy Conli, producer of the Academy Award-nominated film "Big Hero 6," pose with the character Baymax at Walt Disney Animation Studios in Burbank, California. Photo: Allen J. Schaben/Los Angeles Times/TNS

"Big Hero 6" was a huge success for Disney in many ways. It made more than \$500 million at the box office. Fans and critics loved it. It even won the Oscar for best animated film.

The movie was also important to Disney for another reason. It was made using new software that Disney developed. It took 39,000 hours to create this complex computer program.

The software is called Hyperion. It makes the light in an animated film look and act the way it does in real life. In computer animated films, the characters, scenery and action are drawn using computers instead of by hand. So more powerful software can help make the movie look more realistic or more dreamlike.

Race To Draw The Best

Companies that create animated movies have been battling to develop the best technology. One of Disney's rivals is DreamWorks Animation. DreamWorks has about 120 people working on research and development. Some of those people used to work for NASA, the government agency that sends people and satellites into space.

Disney's Hyperion software could change the way animated movies are made.

"It's a major step for them," said Dan Sarto, who follows the animation business. "They are only as good as the tools they allow their artists to use."

Computer-animated films are big business. In most years, a couple of the top 10 box office hits are animated. Companies can often sell toys, clothes and other items based on the movies. These products can bring in a lot of money.

That's what happened with Disney Animation's "Frozen." The animated movie brought in \$1 billion worldwide in ticket sales. It also made more money in other ways for the Walt Disney Company.

Flying Robots, Shining Skies

Huge hits like "Frozen" are rare. Hyperion is a powerful new tool that Disney Animation hopes will lead to more money-making movies.

The software was created to solve a problem. Disney Animation bosses did not think any of the computer programs the company had were powerful enough to make "Big Hero 6."

The movie was released in November. It is about a robot called Baymax and a young robot designer named Hiro. The two form a superhero group and fight a masked bad guy in the futuristic city of San Fransokyo. The city, a mix of San Francisco and Tokyo, lies on a shimmering bay. It's filled with tall buildings and flashing neon lights.

"Big Hero 6" producer Roy Conli said they wanted the air and light in the movie to seem like San Francisco's.

Reviewers said they liked the film's animation. The movie has several flying scenes that are filled with amazingly realistic light. Without Hyperion, the movie would not have looked as good, said Disney Animation's head of technology, Andy Hendrickson.

A Light Touch

The new software is now being used by Disney Animation for its upcoming movie “Zootopia.” It also was used for “Frozen Fever,” a short film that features the characters of “Frozen.”

Before Hyperion, it was difficult to show light in animated movies. Each ray of light was tracked separately. One movie scene could have lots of light — the sun coming in, the lamp on. Each ray of light could bounce off different surfaces. All of this made it tough for computers to figure out.

Light can split into “thousands of rays,” Hendrickson said. “Does it reflect right back if it came off a mirror? Does it scatter? Does it pick up the color of the object? You end up running out of computing power.”

Software Was The Hard Part

It took about 2 1/2 years to develop Hyperion. It began with an idea from software engineer Brent Burley.

Burley suggested that organizing groups of light rays into bundles would make it easier for a computer system to do the math. With the new system, a film can show more complicated light effects that are more detailed and realistic.

The company decided to use Burley’s ideas. Disney Animation began with four developers working on the new system. Soon, the number grew to 12.

The decision to create Hyperion was risky. Programmers were still working on it when “Big Hero 6” went into production. They completed Hyperion only a few months before it was needed. If the software didn’t work as Disney Animation hoped, “Big Hero 6” could have been in trouble.

“This was a big risk,” Sarto said. “But it will pay off for them. A tool like this allows them to spend more time” focusing on how the film will look.

Questions

“In Big Hero 6,” a robot saves the day, software developers light the way”

Directions: Answer the following questions based on the text.

1. Select the 3 details from the text that best support the idea that companies are competing to have the best animation software.
 - a. The software was created to solve a problem.
 - b. Disney’s Hyperion software could change the way animated movies are made.
 - c. They are only as good as the tools they allow their artists to use.
 - d. Computer-animated films are big business.
 - e. Companies that create animated movies have been battling to develop the best technology.

2. Which statement best summarizes the central idea of the text?
 - a. *Big Heroes 6* is an awesome movie which takes place in a city like San Francisco.
 - b. Companies invest a lot of time and money into developing software which allows their artists the freedom to make the animation realistic.
 - c. Movies like *Frozen*, *Zootopia*, and *Big Heroes 6* are big hits because of the animation effects the artists used to create the films.
 - d. Making animated films that look realistic are difficult, time-intensive, and take a long time.

Write two sentences/details from the text that best support your answer above.

A Bad Robot

By ReadWorks

Bonnie Graham just had to admit it: EARL was a bad robot. No longer could she overlook his many faults. He played music that was just embarrassingly bad. He seemed incapable of cool robot things like dancing the robot or cutting steel with his laser eyes. At night his pistons and spinning gears made so much noise that Bonnie could hardly sleep, even when she got really mad and squeezed him into the closet.

And then yesterday happened. Bonnie had spent months building her robot. She called it Electronic Armed Robotic Laser death (EARL), a name she chose last year when her mother seemed totally cool with the whole laser-eyed-robot-living-in-our-house idea. Bonnie later discovered her mother was joking; the project's first setback.

From there, Bonnie did all the engineering herself. She designed EARL's remote stabilization system, using an air-filled bladder in the machine's belly to keep its torso upright. She machined the hands from steel bearings coated in vulcanized rubber. Bonnie used lathes at her mom's tool-and-die company to sculpt EARL's face, with slanting eyes and a mouth full of jagged metal teeth, which made him look terrifying and awesome.

For 10 months, building EARL consumed all Bonnie's free time. Her friends at Garrett Morgan High School made a website called *WheresBonnie.com*, where they posted pictures of Bonnie's face crudely superimposed onto people climbing the Himalaya Mountains, or shopping in Tokyo.

Ok, seriously I don't remember the last time I saw you after school, Nicole Akmal, one of Bonnie's closest friends, wrote in an email. Maybe this "robot" is actually that new boy Chas Phelps? Call me, nerdbreath.

So yesterday Bonnie brought EARL to school. She knew he wasn't quite ready—his software still had bugs, and sometimes his right leg seized. But she couldn't handle her friends' needling any longer, or the weird looks from kids she didn't know.

And man, EARL made one sweet entrance. Trotting up the stairs beside Bonnie, the robot reflected sunlight like a mirror. Everyone fell silent as the two of them passed, and no one heard EARL's loud buzzing motorized arms and legs over the idling buses.

The euphoria didn't last long. Once inside, EARL noticed all the metal lockers, the tops of which have metal slats reminiscent of the robot's face. EARL slipped his rubber hand free of Bonnie's to inspect the lockers, shoving students aside in the process.

"EARL. Cancel Directive!" Bonnie said.

EARL heard nothing over the din of shrieking students running away in fear. Finally, the robot found a bashed-in locker door, probably the work of roughhousing football players. More than the other lockers, this one's bent metal door resembled EARL.

The robot grabbed it in both hands and ripped it off its hinges.

Bonnie was struck with horror. He's destroying the school! He's going to get me expelled! "EARL! CANCEL DIRECTIVE!!" she screamed.

EARL froze. The robot's head spun toward Bonnie as he clutched the locker door closer to his anodized steel chest.

"Looks like your stupid robot found a friend," said Brian Cotterman, a classmate who always teased Bonnie about her braces.

"Shut up, weasel," Bonnie shot back. But she was shaking. EARL's arms could generate 1,200 pounds of pressure per square-inch, enough to crush bowling balls. But how could its 2.1-gigahertz microprocessor brain, torn right from her dad's old laptop, possibly malfunction like this?

"EARL. Drop," Bonnie said. The robot walked to her side, but it did not drop the locker door. Bonnie sighed. Reprogramming the robot and reducing its arm strength meant weeks of work, but this was not the time.

“We’re late for homeroom,” said Bonnie, surprised to hear herself say “we.” EARL is a tool, Bonnie’s mother kept reminding her, not a friend or a puppy.

“Don’t anthropomorphize it, honey,” Bonnie’s mom said one night after she found Bonnie dancing around her bedroom with the metal contraption. “It’s a walking blender. Never forget that.”

Right, Bonnie thought, standing in the school hallway. Walking blender. With a shaky hand, she took EARL by the elbow and guided him—it!—into homeroom.

“Why hello, Bonnie!” said Mrs. Grube, the homeroom teacher for Bonnie’s freshman class.

From her open expression, it didn’t seem the teacher had heard the commotion down the hall. “I see you’ve brought your experiment. What is that he’s carrying?”

A wave of suppressed giggles swept across the classroom. “Um, it’s a programming error,” Bonnie said. “I can fix it.”

“Hmm,” Mrs. Grube said, pausing for a few uncomfortable seconds, her eyebrows knotted as she figured what to do next.

“Well,” said the teacher, her mood brightening, “We’ve all heard a lot about your robot. Why don’t you tell us about him?”

Bonnie exhaled. “Great!” she said. “EARL. Initiate Demonstration Program 1.”

The robot turned and faced the class. The students’ backs stiffened. Only now did they see the thing’s true height. Demonstration Program 1 called for EARL, using his right index finger, to press “Play” on the iPod embedded in his chest. The song “Harder, Better, Faster, Stronger” by Daft Punk would flow from speakers in his hips, and EARL would dance, making karate-chops with his hands as the wheels in his feet executed perfect moonwalks.

Unfortunately there was a locker door in EARL’s right hand, and he refused to let go.

So the robot defaulted to Demonstration Program 2, tapping the iPod with his left index finger. Bonnie watched in horror as her robot waltzed to Celine Dion's "My Heart Will Go On." She had forgotten all about Demonstration Program 2. It was written months ago, back when she doubted EARL could handle pop-and-lock dance moves.

Tears filled Bonnie's eyes. She didn't even *like* Celine Dion anymore! "EARL! Cancel Directive!" Bonnie shouted.

The robot heard nothing over the lyrics. "Near, far, where-EVER you are!" The terrible screeching caterwauled through EARL's thigh speakers. "I believe that the heart does go on!"

Mrs. Grube's eyes stood as wide open as her mouth. Bonnie's classmates pushed back in their chairs, unsure whether to laugh or run for cover.

I cannot stand one more second of this, Bonnie thought. As EARL pivoted left in his waltz, she moved in behind him, reached into the seams in the robot's lower back, and disconnected the red and black clamps holding power lines to EARL's battery pack. As the big machine slumped to the ground, its collapsing torso squeezed air from the inflated bladder, making a noise like a balloon rapidly losing air.

The classroom lost it. Weasel Brian Cotterman and his four stupid friends laughed so hard they fell off their seats and rolled across the floor. Bonnie felt like she might explode. Tears pouring, she bolted out of the classroom.

That night Bonnie got her first good night's sleep in weeks. She was worn out from all the crying. Plus her dad moved his car from the garage and put EARL in there instead, so finally Bonnie couldn't hear the machine's clicks and whirs. When she finally woke up, she walked out to the garage and found EARL. He slouched in the far corner, one arm draped over her mother's drill press, the other wrapped tight around the school locker door.

Bonnie smiled. The robot had found some friends, and now it was time for Bonnie to find hers. She took her phone from the pocket of her shorts and called Nikki Akmal. "Hey dorknugget," Bonnie said. "What are you doing later?"

Questions
“A Bad Robot”

Directions: Answer the following questions based on the text.

1. Which sentence best summarizes the theme of the text?
 - a. Robots are unreliable instruments that humans should not waste time building.
 - b. To succeed at something you must ignore your friends and other parts of your personal life.
 - c. Even when you work very hard, things don't always work out as you hoped.
 - d. If you work hard at something, nothing will go wrong.

2. Which details from the text indicate the inference that Bonnie was frustrated and upset? Select all that apply.

- Bonnie felt like she might explode.
- Tears pouring, she bolted out of the classroom.
- Bonnie had spent months building her robot.
- The robot's head spun toward Bonnie as he clutched the locker door closer to his anodized steel chest.
- Tears filled Bonnie's eyes. She didn't even *like* Celine Dion anymore!
- Weasel Brian Cotterman and his four stupid friends laughed so hard they fell off their seats and rolled across the floor.

Introducing the robotic flying jellyfish

By Los Angeles Times, adapted by Newsela staff on 01.01.14
Word Count **716**



Australian spotted jellies are shown at the Monterey Bay Aquarium in Monterey, Calif., in November 2005.
Photo: Orville Myers/MCT

Although they live in the ocean, jellyfish are not actually fish. They don't have a backbone, and they don't swim like fish. But, they are very good at moving through the water.

Now, scientists are trying to get them to fly. Not real jellyfish, but robots that look like them.

A team from New York University has designed flying robots. These robots use four flapping wings that are controlled by a computer or a machine to stay in the air. The robots act like a jellyfish.

"Something Very Different"

"I wanted to think of something very different," said Leif Ristroph, a professor at New York University. "So I actually tried about five or 10 different schemes, all of which failed except this one." And that was the jellyfish scheme.

At a meeting in Pennsylvania, the new robot was discussed. Scientists explained how the jellyfish robot could lead the way for flying mini-robots to be used in search-and-rescue and military missions.

The jellyfish robot might even make it easier for people to test air and water quality.

Engineers have been trying to build all sorts of robots based on the wing motions of animals and insects. They have studied birds, bats, hummingbirds and butterflies.

When working on the smallest robots, they often use insect-like designs. That's because bugs have become experts at flying with tiny wings.

Many animals and insects fly in the same way. They move their wings back and forth in a motion that looks like an S.

Only a few creatures move their wings in a simple up-down motion. Dragonflies are one of those creatures.

A Simple Choice

Basing designs on flying animals and insects is "a great place to start in terms of building a flying machine," said Ristroph. "But there are some technical problems with it."

One problem is wind. Animals and bugs with flapping wings have to spend a lot of time dealing with changing conditions. They sense every gust of wind. Depending on the wind's speed, they have to make changes to the way they fly.

It takes a lot of work to fly. That's because flying animals and insects must be able to shift the way they fly very quickly.

Scientists are hoping to make flying easier for robots. They want to build something that is small, simple and able to be stable in the air without too much thinking.

Jellyfish turned out to be a good choice, because they are very simple creatures. They don't have brains and are mostly made up of water. Other than water, they just have a small amount of jelly-like stuff. And jellyfish don't have bones.

Their simple bodies look like an open umbrella or a bell. Their arms are tentacles which hang down from the bell shape. They have a large mouth located at the bottom of the bell.

Their simple body type helps when it comes to building flying robots. Jellyfish can be big and small. Their different sizes help scientists when building robots.

For instance, Lion's Mane jellyfish can be over 7 feet in width. On the other hand, the Irukandji jellyfish can be less than an inch wide.

Moving Like A Jellyfish

The scientists' jellyfish robot is 3 inches wide. It weighs almost nothing.

The robot has four wings that look like flower petals. They flap up and down. The robot moves more like a moth in fact. Jellyfish move with the ocean's current or by squeezing water in and out of their bells.

So far, the robotic flying jelly still has to be plugged into a power source, and can't fly without being attached. And it can't yet be steered in different directions. But that doesn't mean they don't work. The first round of robot jellyfish models show that such a design can indeed work.

Ristroph thinks that the flying robot could be useful for the military. He also thinks everyday people could benefit from the robot. One day, mini flying jellies might be used to test air quality. In the air, they could be used to record information about the atmosphere.

Professor John Dabiri is an expert on how jellyfish swim. He said the robot doesn't look like a jellyfish, but it does move in the same ways.

Dabiri says he's sure that jellyfish would be proud.



Summer Math Reinforcement Packet Students Entering into 6th Grade

Our fifth graders had a busy year learning new math skills. **Mastery of all these skills is extremely important in order to develop a solid math foundation.** The sixth grade math program will **add onto these fifth grade skills**, so any time spent learning or reinforcing these concepts will be very beneficial for your child. Each year builds upon the previous year's skills in math. Any areas your child has difficulty, you may want to give them additional practice. **Student mastery of the basic math skills is as important to success in future mathematical procedures and reasoning as learning the alphabet is to reading and writing.**

After your child has completed the math problems and you feel your child is still struggling on a certain concept and needs further practice, you can visit some of the web sites listed on the next page. You can also make up problems of your own for additional practice.

Enjoy your summer!!

Reminder - Practicing multiplication (up to 12) and division facts are VERY important!

FIFTH GRADE

GRADE LEVEL EXPECTATIONS IN MATHEMATICS

When entering sixth grade this is what is expected that your child should already know.

1. Understand the meaning of division of whole numbers and how to check your answers through multiplication. Ex. $34 \div 5 = 6 \text{ r}4$, so $5 \times 6 = 30 + 4 = 34$.
2. Fluently multiply a multi-digit number by a two-digit number.
3. Divide fluently up to a four-digit number by a two-digit number.
4. Find the prime factorization of numbers from 2 through 50, express in exponential notation.
Ex. $24 = 2 \times 2 \times 2 \times 3 = 2^3 \times 3^1$
5. Understand a fraction as a statement of division. Ex. $2 \div 3 = \frac{2}{3}$
6. Multiply and divide 2 fractions and understand fact families.
7. Divide a fraction by a whole number and a whole number by a fraction.
8. Add and subtraction fractions using unlike denominators, using common denominators.
9. Multiply and divide by 10's, 100's and 1,000's using mental math.
10. Multiply up to 2-digits and decimals up to 2 digits.
11. Solve story problems with adding, subtracting, multiplying, dividing fractions and decimals.
12. Solve for the unknown in equations such as $\frac{1}{4} + x = \frac{7}{12}$.
13. Express fractions and decimals as percentages and vice versa.
14. Express ratios in several ways. Ex. 3 cups to 5 people, $3 : 5$, $\frac{3}{5}$; find equivalent ratios.
15. Recognize the equivalence of 1 liter, 1,000 ml and 1,000 cm^3 and conversion between.
16. Understand volume; cubic centimeter (cm^3), cubic meter (m^3), cubic inches (in^3), cubic foot, (ft^3), and cubic yard (yd^3). Be able to compare one cubic inch to one cubic foot and one cubic centimeter to one cubic meter.
17. Convert measurements of length, weight, area, volume, and time within metric to metric and within standard measurement to standard measurement.
18. Know how to calculate the area of a triangle – $A = \frac{1}{2} bh$ and area of a parallelogram $A = bh$.
19. Calculate the volume of a cube and rectangular prism.
20. Understand that the measurement of 90° , 180° , 270° , and 360° are associated respectively with $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$, and full turns.
21. Measure angles with a protractor and classify them as acute, right, obtuse and straight.
22. Find unknown angles in problems with angles on a straight line, vertical angles and surrounding a point.
23. Know angles on a straight line = 180° and angles surrounding a point add up to 360° .
24. Know the sum of the interior angles of a triangle is 180° and the sum of the interior angles of a quadrilateral is 360° .
25. Read, interpret, and solve problems involving line graphs.
26. Construct line graphs from tables of data; including axis labels and scale.
27. Calculate and interpret the mean and mode of a given set of data.
28. Solve multi-step problems involving means,

Excellent websites for fun learning and reinforcement of math skills:

www.wildmath.com Select “Play the game”. Select addition, subtraction or multiplication and grade. You can race to beat your time.

www.harcourtschool.com Click the red box, select math, select HSPMath, select Michigan, click on the “5” ball or “6” ball for a challenge. Select a game.

www.aplusmath.com Go under “Flashcards” or “Game Room” on the left side of the screen. They can practice adding, subtracting and multiplying. Very important to know the addition, subtraction and multiplication facts from memorization or within a couple seconds.

www.mathisfun.com Select numbers then Math Trainer for adding, subtracting and multiplication. Or at the home screen select games and pick a game to play.

www.eduplace.com Select your state – “Michigan” press submit. Select the student tab then click on the “mathematics” rectangle. Click in the center book “Houghton Mifflin Math 2007”, Click on “Grade 5”. Select any games. Extra Help and Extra Practice is good, also eGames.

www.illuminations.nctm.org Select activities then select grade level. Click on Search.

www.aaamath.com At the top pick “Fifth” or “Sixth” for a challenge. Choose any of the activities like multiplication then select “play” option toward the top of the screen. 20 Questions and Countdown games are good ones.

www.funbrain.com Lots of fun games to choose from.

Other games and activities you can play:

- Take a deck of cards and remove the face cards (kings, queens, jacks). Aces are one. Divide the cards evenly among 2 players. Each player flips over a card. The first one to add the 2 numbers correctly the fastest wins the cards. After going through the pile of cards, the player with the most cards wins. You can do a multiplication version also.

TERMS

Edges: This is all the straight lines of a figure. Like the edge of a desk.

Faces: This is the flat surface of a figure.

Vertex: This is all the corners of a figure.

Right angle: An angle at 90° like a corner of a piece of paper.

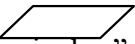
Acute angle: An angle smaller than a right angle.

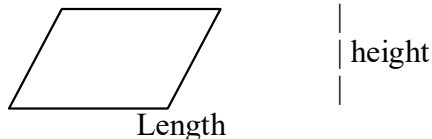
Obtuse angle: An angle larger than a right angle.

Volume: volume is length x width x height

Perimeter: You add up all the sides. (You are adding all lengths of the outer edges together.)

Area: Area of a square or rectangle = length (l) x width (w) answer is written in "square inches"
(or whatever the measurement is)

Area of a parallelogram  is length x height.
Answer written in "square inches" (or whatever measurement)



Area of a triangle is $\frac{1}{2}$ base x height or $(\text{base} \times \text{height}) \div 2$

Triangle: Sum of the 3 interior angles of a triangle is always 180° .

Quadrilateral: Sum of the 4 interior angles in a quadrilateral is always 360° .

Mean: This is average. You add the set of number values and divide it by how many numbers you have.

Median: Arrange numbers from smallest to largest. What number is in the middle?
That is the Median number.

Mode: What number occurs most often? This number is the mode.

Range: Subtract the largest number in the group from the smallest number in the group.
This number is the range.

Conversion:

60 seconds = 1 minute

60 minutes = 1 hour

365 days = 1 year

12 inches = 1 foot

3 feet = 1 yard

5,280 feet = 1 mile

24 hours = 1 day

12 months = 1 year

52 weeks = 1 year

10 millimeter = 1 centimeter (approx. $3\frac{1}{2}$ centimeters = 1 inch)

100 centimeter = 1 meter (approx. 1 meter = 1 yard)

Liter to milliliter is the same as meter to millimeter

Fractions:

Adding and subtracting: you need to have the same common denominator (bottom) then, you + or – the numerators (top).

Multiplying: you multiply both numerators then you multiply both denominators. Convert to improper fractions if needed, no mixed numbers.

Dividing: convert to improper fractions; flip the second fraction in the equation then multiply.

Entering 6th Grade Summer Math Packet

First Name: _____ Last Name: _____

6th Grade Teacher: _____

I have checked the work completed: _____
 Parent Signature

1. Find the products. **This page should be completed in 3 minutes no more than 4 minutes.**
Have someone time you. Any multiplication problem you do not know quickly, practice on flash cards.

6	4	7	5	12	3	6	3	0	7	5	6	3	8
<u>x2</u>	<u>x4</u>	<u>x2</u>	<u>x4</u>	<u>x0</u>	<u>x5</u>	<u>x3</u>	<u>x8</u>	<u>x8</u>	<u>x3</u>	<u>x5</u>	<u>x4</u>	<u>x9</u>	<u>x3</u>

6	2	3	8	7	12	8	3	11	7	9	4	4	9
<u>x5</u>	<u>x12</u>	<u>x6</u>	<u>x2</u>	<u>x5</u>	<u>x1</u>	<u>x4</u>	<u>x7</u>	<u>x4</u>	<u>x6</u>	<u>x2</u>	<u>x8</u>	<u>x6</u>	<u>x3</u>

4	5	0	5	9	5	2	9	5	11	5	9	7	7
<u>x7</u>	<u>x0</u>	<u>x3</u>	<u>x8</u>	<u>x4</u>	<u>x7</u>	<u>x1</u>	<u>x5</u>	<u>x6</u>	<u>x5</u>	<u>x9</u>	<u>x8</u>	<u>x7</u>	<u>x9</u>

8	6	8	1	9	9	8	1	9	2	1	3	12	1
<u>x8</u>	<u>x6</u>	<u>x7</u>	<u>x2</u>	<u>x6</u>	<u>x9</u>	<u>x6</u>	<u>x9</u>	<u>x1</u>	<u>x5</u>	<u>x1</u>	<u>x4</u>	<u>x3</u>	<u>x3</u>

8	8	12	8	12	5	3	4	2	7	6	2	6	12
<u>x0</u>	<u>x1</u>	<u>x4</u>	<u>x9</u>	<u>x0</u>	<u>x1</u>	<u>x2</u>	<u>x0</u>	<u>x2</u>	<u>x1</u>	<u>x8</u>	<u>x6</u>	<u>x7</u>	<u>x5</u>

8	4	2	9	12	11	2	7	0	6	1	5	3	2
<u>x5</u>	<u>x1</u>	<u>x8</u>	<u>x7</u>	<u>x8</u>	<u>x6</u>	<u>x9</u>	<u>x4</u>	<u>x2</u>	<u>x9</u>	<u>x0</u>	<u>x2</u>	<u>x3</u>	<u>x4</u>

4	12	4	4	1	2	11	6	7	5	2	1	4	11
<u>X9</u>	<u>x6</u>	<u>x2</u>	<u>x3</u>	<u>x4</u>	<u>x3</u>	<u>x7</u>	<u>x1</u>	<u>x8</u>	<u>x3</u>	<u>x7</u>	<u>x8</u>	<u>x5</u>	<u>x4</u>

2. Find the quotients. **This page should be completed in 3 no more than 4 minutes. Practice any problems you do not know instantly.** Think of the multiplication fact family. The better you know your multiplication facts the easier division will be.

$$2)\overline{2} \quad 3)\overline{9} \quad 8)\overline{32} \quad 7)\overline{49} \quad 5)\overline{10} \quad 4)\overline{0} \quad 1)\overline{1} \quad 4)\overline{8} \quad 2)\overline{12} \quad 9)\overline{54} \quad 1)\overline{3} \quad 1)\overline{2} \quad 2)\overline{4}$$

$$8)\overline{8} \quad 7)\overline{63} \quad 8)\overline{40} \quad 5)\overline{0} \quad 4)\overline{4} \quad 4)\overline{12} \quad 9)\overline{45} \quad 9)\overline{63} \quad 6)\overline{6} \quad 3)\overline{12} \quad 1)\overline{7} \quad 3)\overline{0} \quad 1)\overline{9}$$

$$2)\overline{16} \quad 3)\overline{3} \quad 3)\overline{15} \quad 5)\overline{20} \quad 3)\overline{18} \quad 3)\overline{6} \quad 5)\overline{15} \quad 7)\overline{0} \quad 9)\overline{27} \quad 4)\overline{16} \quad 7)\overline{21} \quad 4)\overline{20} \quad 7)\overline{28}$$

$$8)\overline{16} \quad 3)\overline{21} \quad 9)\overline{18} \quad 4)\overline{24} \quad 2)\overline{6} \quad 1)\overline{8} \quad 5)\overline{35} \quad 7)\overline{35} \quad 3)\overline{27} \quad 6)\overline{36} \quad 3)\overline{24} \quad 2)\overline{0} \quad 4)\overline{32}$$

$$9)\overline{9} \quad 4)\overline{36} \quad 6)\overline{42} \quad 5)\overline{40} \quad 8)\overline{64} \quad 7)\overline{14} \quad 6)\overline{30} \quad 8)\overline{56} \quad 1)\overline{5} \quad 4)\overline{28} \quad 7)\overline{56} \quad 8)\overline{24} \quad 6)\overline{24}$$

$$81 \div 9 = \underline{\quad\quad\quad} \quad 48 \div 6 = \underline{\quad\quad\quad} \quad 18 \div 6 = \underline{\quad\quad\quad} \quad 42 \div 7 = \underline{\quad\quad\quad}$$

$$10 \div 2 = \underline{\quad\quad\quad} \quad 54 \div 6 = \underline{\quad\quad\quad} \quad 36 \div 9 = \underline{\quad\quad\quad} \quad 45 \div 5 = \underline{\quad\quad\quad}$$

$$72 \div 8 = \underline{\quad\quad\quad} \quad 8 \div 2 = \underline{\quad\quad\quad} \quad 72 \div 9 = \underline{\quad\quad\quad} \quad 6 \div 1 = \underline{\quad\quad\quad}$$

$$25 \div 5 = \underline{\quad\quad\quad} \quad 5 \div 5 = \underline{\quad\quad\quad} \quad 18 \div 2 = \underline{\quad\quad\quad} \quad 30 \div 5 = \underline{\quad\quad\quad}$$

$$12 \div 1 = \underline{\quad\quad\quad} \quad 49 \div 7 = \underline{\quad\quad\quad} \quad 21 \div 3 = \underline{\quad\quad\quad} \quad 36 \div 6 = \underline{\quad\quad\quad}$$

Select the one best answer for each question. DO NOT use a calculator in completing this packet.

3. Jennie was assigned this problem:

$$\begin{array}{r} 146 \\ \times 25 \\ \hline \end{array}$$

She worked out the problem in this way:

$146 \times 2 = 292$, and $146 \times 5 = 730$. Then she added $292 + 730$. She knew that her answer was wrong because her answer seemed too small. What should she have done differently?

- A. She should have multiplied 146×50 instead of 146×50 .
 B. She should have multiplied 146×20 instead of 146×2 .
 C. She should have multiplied 146×200 instead of 146×2 .
 D. She should have multiplied 140×2 instead of 146×2 .
4. Which of the following is the correct computation of $4,063 \times 52$? (Do not use a calculator.)

- | | | | |
|---|---|---|---|
| <p>A. $\begin{array}{r} 4,063 \\ \times 52 \\ \hline 8026 \\ \underline{200150} \\ 208176 \end{array}$</p> | <p>B. $\begin{array}{r} 4,063 \\ \times 52 \\ \hline 8126 \\ \underline{20315} \\ 28441 \end{array}$</p> | <p>C. $\begin{array}{r} 4,063 \\ \times 52 \\ \hline 8126 \\ \underline{2030150} \\ 2038276 \end{array}$</p> | <p>D. $\begin{array}{r} 4,063 \\ \times 52 \\ \hline 8126 \\ \underline{203150} \\ 211276 \end{array}$</p> |
|---|---|---|---|

5. Samantha has to read a book that is 525 pages long. She has 21 days to read the book. How many pages will she need to read each day to finish on time?
- A. 21
 B. 25
 C. 546
 D. 11,025
6. Andrew's family is going on vacation across the United States. They traveled 515 miles every day for 17 days. How many miles did they travel in all?
- A. 532
 B. 4,120
 C. 8,165
 D. 8,755
7. Three classes of 25 students collected 8 cans of soup from each student. The cans were then to be divided between 4 charities. How many cans of soup went to each charity?
- A. 50
 B. 108
 C. 150
 D. 800

8. Brent has a collection of 84 Bobble Head trophies he needs to box up for the move to his new home. He can fit 7 trophies into one box. How many boxes will Brent need?
- A. 10
 - B. 12
 - C. 13
 - D. 21
9. Kayla has 12 cousins. She received \$15.00 from each cousin for her birthday. How much money did she receive in all?
- A. \$27
 - B. \$120
 - C. \$150
 - D. \$180
10. The 5th grade is going on a trip to the state park. There are 1,012 students going. Each bus can hold 44 students. How many busses will they need? (Do not use a calculator.)
- A. 23
 - B. 26
 - C. 50
 - D. 968
11. Find $1717 \div 17$. Do not use a calculator.
- A. 11
 - B. 101
 - C. 107
 - D. 1001
12. Solve $4806 \div 15$ without using a calculator, show your work.
- A. 32
 - B. 320 r 6
 - C. 320 r 4
 - D. 320
13. Solve $647 \div 21$. Do not use a calculator, show your work.
- A. 3 r 11
 - B. 3 r 21
 - C. 30 r 8
 - D. 30 r 17

14. Use a factor tree to find the prime factorization of the composite number 50. Which answer expresses the number in exponential notation (powers)?

A. 2×5^2
 B. $2^2 \times 5^2$
 C. $2^3 \times 5^3$
 D. 10×5

15. Find the prime factorization for 84.

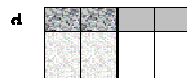
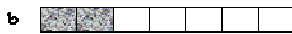
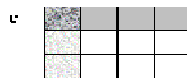
A. 2×42
 B. $7 \times 2 \times 2 \times 3$
 C. $7 \times 4 \times 3$
 D. 7×12

16. Find the prime factorization for the number 48 expressed in exponential notation.

A. $3^1 \times 2^4$
 B. 6×8^1
 C. $3 \times 2^4 \times 4$
 D. $3 \times 2^2 \times 4$

17. Which drawing would you use to find the product of these two fractions?

$$\frac{1}{4} \times \frac{1}{3} =$$



- A. Drawing a
 B. Drawing b
 C. Drawing c
 D. Drawing d
18. Solve this equation:

$$\frac{2}{3} \div 3 =$$

A. 2
 B. 3
 C. $\frac{2}{6}$
 D. $\frac{2}{9}$

19. Solve the following:

$$\frac{1}{3} \div 4 =$$

- A. $\frac{4}{3}$
- B. $\frac{1}{7}$
- C. $\frac{1}{12}$
- D. 12

20. Solve this equation: $2 \div \frac{1}{4} =$

- A. $\frac{1}{2}$
- B. $\frac{2}{4}$
- C. 2
- D. 8

21. Mrs. Lovell's class is baking cookies. They need $3\frac{3}{5}$ pounds of sugar and $5\frac{1}{3}$ pounds of flour. When they mix the sugar and flour together, how many pounds will they have altogether?

- A. $8\frac{4}{8}$ pounds
- B. $8\frac{3}{4}$ pounds
- C. $9\frac{3}{15}$ pounds
- D. $8\frac{14}{15}$ pounds

22. Choose the correct answer for this problem:

$$\frac{7}{9} - \frac{3}{8} =$$

- A. $\frac{10}{17}$
- B. $\frac{29}{72}$
- C. $\frac{56}{27}$
- D. $\frac{21}{72}$

23. Choose the correct answer for this problem:

$$\frac{3}{7} + \frac{2}{9} =$$

- A. $\frac{5}{16}$
- B. $\frac{41}{63}$
- C. $\frac{6}{63}$
- D. $\frac{18}{14}$

24. Tom had $\frac{7}{12}$ of a pizza. His little sister came along and took $\frac{2}{5}$ of his pizza away. How much pizza does Tom have left?

- A. $\frac{11}{60}$
- B. $\frac{5}{7}$
- C. $\frac{9}{17}$
- D. $\frac{5}{60}$

25. Jill has $\frac{3}{4}$ of a yard of ribbon. Tammy has $\frac{4}{7}$ of a yard. How much do they have together?

- A. $\frac{7}{11}$ of a yard
- B. $\frac{40}{28}$ of a yard
- C. $\frac{1}{3}$ of a yard
- D. $\frac{37}{28}$ of a yard

26. Paul had $3\frac{7}{8}$ cups of milk. He gave $1\frac{3}{4}$ cups of milk to his cat. How much milk did he have left? Show your work.

- A. 2 cups
- B. $2\frac{1}{8}$ cups
- C. $2\frac{4}{4}$ cups
- D. $1\frac{7}{8}$ cups

27. Nancy ate $\frac{1}{3}$ of a pizza and Gabe ate $\frac{1}{4}$ of the pizza. How much of the whole pizza is left?

- A. $\frac{7}{12}$
- B. $\frac{5}{12}$
- C. $\frac{2}{7}$
- D. $\frac{6}{7}$

28. Choose the correct answer for this problem: $\frac{5}{4} - \frac{3}{12} =$

- A. $\frac{2}{12}$
- B. $\frac{12}{12}$
- C. $\frac{9}{24}$
- D. $\frac{2}{48}$

29. Patty brought $\frac{1}{2}$ of a cake to class, and Joe brought $\frac{3}{4}$ of a cake on the same day. How much cake did the class have altogether? Show your work.

- A. $\frac{1}{4}$ cake
- B. 1 cake
- C. $\frac{4}{6}$ cake
- D. $1\frac{1}{4}$ cake

30. Don has \$12.32 in his piggy bank. He collects and returns pop cans for \$3.70. Approximately how much money does he have together? (Round the answer to the nearest whole dollar.)

- A. \$8
- B. \$15
- C. \$16
- D. \$17

31. Michelle earned \$5.00 for every hour she babysat. Last week she babysat for 8 hours. She spent \$12.00 of the money she earned. Which expression could be used to find how much money she had left?
- A. $\$5.00 \times 8 + \12.00
 - B. $\$5.00 + 8 - \12.00
 - C. $\$5.00 \times 8 - \12.00
 - D. $\$5.00 \times 8 \div \12.00
32. Ten fourth graders will each eat one – fourth of a pizza. How many pizzas need to be ordered for the ten students?
- A. 2 pizzas
 - B. 3 pizzas
 - C. 4 pizzas
 - D. 5 pizzas
33. In the equation $\frac{1}{3} + x = \frac{5}{12}$, what does $x =$?
- A. $\frac{4}{9}$
 - B. $\frac{5}{4}$
 - C. $\frac{1}{12}$
 - D. $\frac{3}{12}$
34. Solve for x :
 $\frac{11}{12} - x = \frac{1}{4}$
- A. $\frac{10}{12}$
 - B. $\frac{8}{12}$
 - C. $\frac{10}{8}$
 - D. $\frac{3}{4}$
35. Solve for x : $x + \frac{1}{3} = \frac{3}{4}$
- A. $\frac{2}{1}$
 - B. $\frac{5}{12}$
 - C. $\frac{4}{7}$
 - D. $\frac{13}{12}$
36. Exactly $\frac{1}{20}$ of the students in Mr. Nebel's class have a bird. What percentage of his students has a bird?
- A. 0.05%
 - B. 1%
 - C. 5%
 - D. 20%

37. Seven out of ten students in Ms. Allington's class completed the summer math packet. What percentage of students completed the packet?
- A. 7 %
 - B. 70 %
 - C. .7 %
 - D. 14%
38. How much larger is one cubic foot than one cubic inch?
- A. 3 times larger
 - B. 15 times larger
 - C. 144 times larger
 - D. 1728 times larger
39. Which of the following is NOT equivalent?
- A. 1 ton = 2000 pounds
 - B. 1 mile = 5200 feet
 - C. 9 feet = 3 yards
 - D. 60 minutes = 3600 seconds
40. Sharon reads the juice bottle and finds that it contains 1.89 liters of juice. His cup only holds 240 milliliters so he wants to convert 1.89 liters to milliliters. The bottle contains how many milliliters?
- A. 1.89 milliliters
 - B. 18.9 milliliters
 - C. 189 milliliters
 - D. 1890 milliliters
41. Solve the following:

$$\begin{array}{r} 2,749 \\ \times 68 \\ \hline \end{array}$$

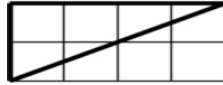
$$\begin{array}{r} 156 \\ \times 78 \\ \hline \end{array}$$

$$\begin{array}{r} 837 \\ \times 46 \\ \hline \end{array}$$

$$\begin{array}{r} 368 \\ \times 20 \\ \hline \end{array}$$

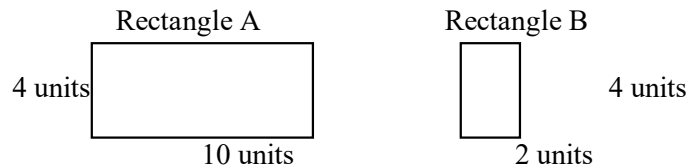
42. Which is true?
- A. 0.07 is ten times greater than 0.7
 - B. 0.070 is ten times greater than 0.007
 - C. 0.070 is equal to 0.0070
 - D. 0.07 is seven times greater than 0.70

43. Using the rectangle method, what is the area of this triangle?



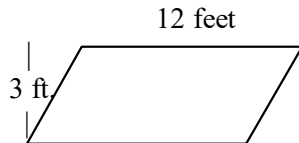
- A. 2 square units
- B. 4 square units
- C. 6 square units
- D. 8 square units

44. Which statement is true about the relationship between the areas of these two rectangles?



- A. Rectangle A has twice the area of Rectangle B.
- B. Rectangle A has 5 times the area of Rectangle B.
- C. Rectangle A has one-half the area of Rectangle B.
- D. Rectangle A has one-fifth the area of Rectangle B.

45. What is the area of this quadrilateral? Area = height x width



- A. 30 feet
 - B. 30 square feet
 - C. 36 feet
 - D. 36 square feet
46. Which of the following is a true statement?

- A. 0.003 is $\frac{1}{3}$ the value of 0.03
- B. 0.003 is 3 times the value of 0.03
- C. 0.003 is $\frac{1}{10}$ the value of 0.03
- D. 0.003 is 10 times the value of 0.03

47. How do the areas of these two figures compare? Select your answer, then explain why you think you answer is correct.

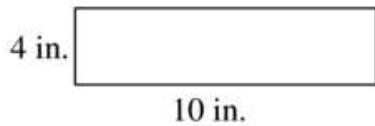


Figure A

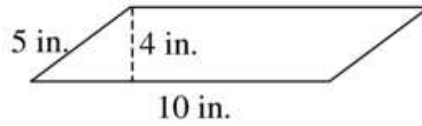
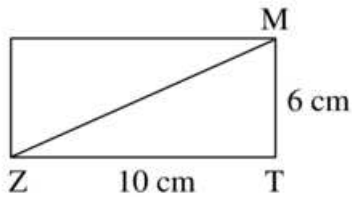


Figure B

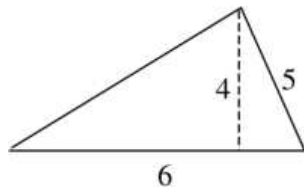
- A. The area of Figure A is greater than the area of Figure B.
 B. The area of Figure B is greater than the area of Figure A.
 C. The area of Figure A is equal to the area of Figure B.
 D. The area of Figure B is twice the area of Figure A.

48. Use the diagram to find the area of the triangle ZMT.



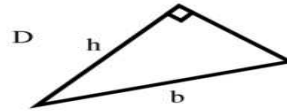
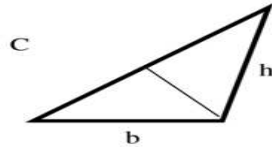
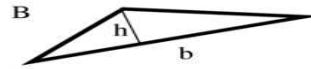
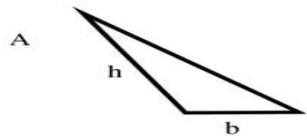
- A. 16 square cm
 B. 30 square cm
 C. 32 square cm
 D. 60 square cm

49. What is the area of this triangle?



- A. $A = (5 \times 4) \div 2$
 B. $A = (5 \times 5) \div 2$
 C. $A = (6 \times 5) \div 2$
 D. $A = (6 \times 4) \div 2$

50. The area of the triangle can be found using the formula $A = bh \div 2$. Which of the following figures is labeled correctly to apply this formula?



51. Solve each of these without using a calculator:

$4 \times 6 = \underline{\quad}$

$8 \times 8 = \underline{\quad}$

$6 \times 7 = \underline{\quad}$

$2 \times 9 = \underline{\quad}$

$5 \times 5 = \underline{\quad}$

$9 \times 6 = \underline{\quad}$

$8 \times 5 = \underline{\quad}$

$2 \times 2 = \underline{\quad}$

$3 \times 4 = \underline{\quad}$

$32 \div 4 = \underline{\quad}$

$7 \times 7 = \underline{\quad}$

$56 \div 7 = \underline{\quad}$

$72 \div 9 = \underline{\quad}$

$18 \div 2 = \underline{\quad}$

$3 \times 8 = \underline{\quad}$

$45 \div 9 = \underline{\quad}$

$4 \times 4 = \underline{\quad}$

$8 \times 7 = \underline{\quad}$

$24 \div 3 = \underline{\quad}$

$3 \times 3 = \underline{\quad}$

$3 \times 8 = \underline{\quad}$

52. Find the sum or difference. Watch the signs.

$$\begin{array}{r} 501 \\ -247 \\ \hline 487 \end{array}$$

$$\begin{array}{r} 607 \\ -217 \\ \hline \end{array}$$

$$\begin{array}{r} 850 \\ +268 \\ \hline \end{array}$$

$$\begin{array}{r} 3,031 \\ -1,441 \\ \hline \end{array}$$

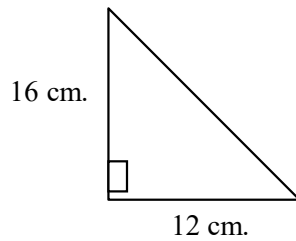
$$\begin{array}{r} 953 \\ +529 \\ \hline \end{array}$$

$$\begin{array}{r} 700 \\ -202 \\ \hline \end{array}$$

$$\begin{array}{r} 387 \\ + \\ \hline \end{array}$$

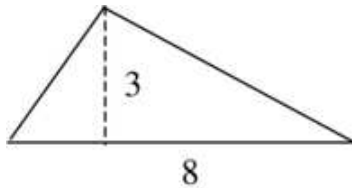
53. Find the difference $701.02 - 234.12$. Show your work

54. What is the area in square centimeters of the triangle pictured below?



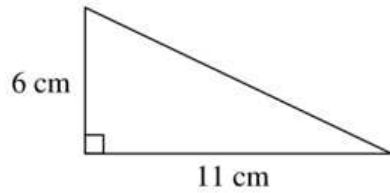
- A. 28 square cm.
- B. 56 square cm.
- C. 96 square cm.
- D. 192 square cm.

55. What is the area of this triangle?



- A. 7
- B. 11
- C. 12
- D. 24

56. What is the area of this triangle? ($A = bh \div 2$)

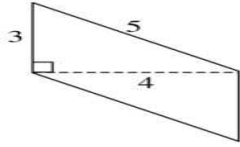


- A. 17 sq. cm.
- B. 33 sq. cm.
- C. 66 sq. cm.
- D. 132 sq. cm

57. The fraction $\frac{4}{20}$ equals what percentage?

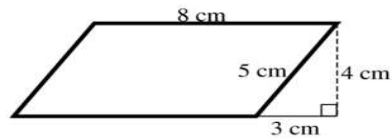
- A. 4 %
- B. 20%
- C. 25%
- D. 40%

58. Use the diagram to find the area of the parallelogram. ($A = bh$)



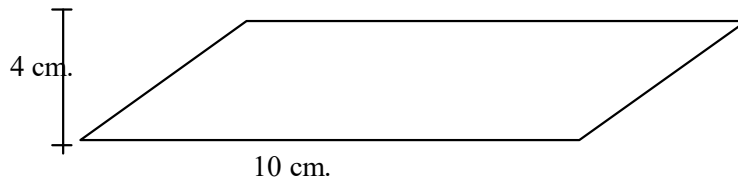
- A. 12 square centimeters
- B. 15 square centimeters
- C. 20 square centimeters
- D. 60 square centimeters

59. Find the area of the parallelogram below.



- A. 12 cm^2
- B. 24 cm^2
- C. 32 cm^2
- D. 40 cm^2

60. What is the area of the parallelogram shown below?



- A. 14 cm^2
- B. 20 cm^2
- C. 28 cm^2
- D. 40 cm^2

61. The area of this parallelogram is 24 square units. The base of the parallelogram is 8 units. What is the height of the figure? Circle your answer below and draw the height on the parallelogram.

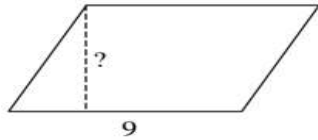


- A. 2 units
- B. 3 units
- C. 4 units
- D. 6 units

62. The area of a parallelogram is 36 square inches. All of the following are possible bases and heights for this figure EXCEPT:

- A. 1 inch by 36 inches
- B. 3 inches by 12 inches
- C. 4 inches by 9 inches
- D. 5 inches by 7 inches

63. The base of the parallelogram below is 9 centimeters. The area is 72 square centimeters. What must the height of the parallelogram be? ($A = bh$)



- A. 6 centimeters
- B. 7 centimeters
- C. 8 centimeters
- D. 9 centimeters

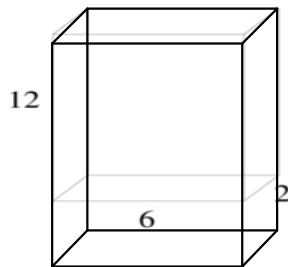
64. Using unit cubes, build a solid that is 6 units in length, 2 units in width, and 3 units in height. What is the volume?

- A. 11 cube units
- B. 18 cube units
- C. 24 cube units
- D. 36 cube units

65. Using unit cubes, build a solid that is 4 units in length, 4 units in width, and 4 units in height. What is the volume?

- A. 12 cube units
- B. 16 cube units
- C. 36 cube units
- D. 64 cube units

66. A cereal box has the shape of a rectangular prism. It is 12 inches high, 6 inches wide and 2 inches deep. How many cubic inches of cereal can it hold?



- A. 20
- B. 40
- C. 72
- D. 144

67. If the minute hand moves half way around a clock, how many degrees has the minute hand turned?

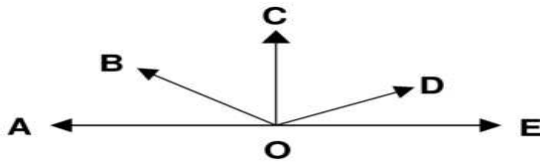
- A. 90°
- B. 180°
- C. 270°
- D. 360°

68. If you are facing north and you turn your body so that you are facing east, how many degrees have you turned?

- A. 90°
- B. 180°
- C. 270°
- D. 360°

69. Find the sum of $23.5 + 157.93$. Show your work.

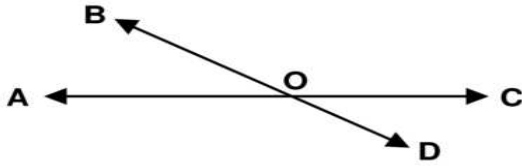
70. Which of the following angles is an acute angle?



- A. $\angle BOE$
- B. $\angle AOD$
- C. $\angle BOC$
- D. $\angle COE$

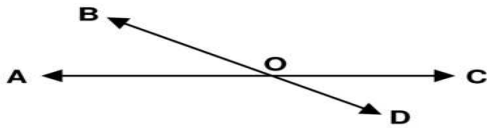


71. Which of these angles is a straight angle?



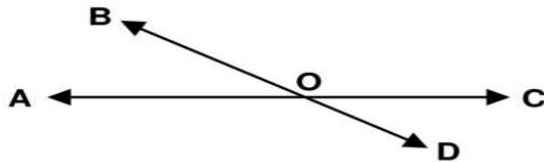
- A. $\angle AOD$
- B. $\angle AOC$
- C. $\angle AOB$
- D. $\angle COD$

72. Which pair of angles are vertical angles?



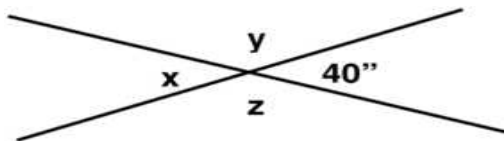
- A. $\angle AOD$ and $\angle BOC$
- B. $\angle AOB$ and $\angle BOC$
- C. $\angle BOC$ and $\angle COD$
- D. $\angle AOC$ and $\angle BOD$

73. Which of these angles is a vertical angle to $\angle DOC$?



- A. $\angle AOB$
- B. $\angle BOC$
- C. $\angle AOD$
- D. $\angle DOA$

74. What is the measure of angle y ? (Do NOT use a protractor to find your answer.)

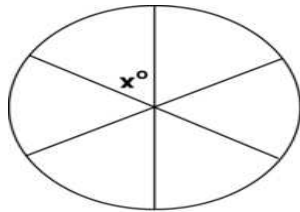


- A. 40
- B. 50
- C. 140
- D. 180

75. In the diagram below, which is the closest to the angle measurement? (Do NOT use a protractor to find your answer.)



- A. 25 degrees
 B. 85 degrees
 C. 150 degrees
 D. 180 degrees
76. A pizza is divided into 6 pieces. Each piece is the same size, as shown in the picture. Think about what the total angle measurement is for all 6 pieces. Then calculate the angle measurement for one piece, angle x .



One piece of pizza has an angle measure of

- A. 30°
 B. 40°
 C. 50°
 D. 60°
77. A gate is open in a 50 degree angle. How many more degrees will the gate have to open until it is flat against the fence?



- A. 40°
 B. 100°
 C. 130°
 D. 310°

78. Solve the following:

$1 \times 9 = \underline{\quad}$

$3 \times 6 = \underline{\quad}$

$9 \times 7 = \underline{\quad}$

$6 \times 2 = \underline{\quad}$

$8 \times 6 = \underline{\quad}$

$2 \times 2 = \underline{\quad}$

$3 \times 8 = \underline{\quad}$

$9 \times 9 = \underline{\quad}$

$24 \div 3 = \underline{\quad}$
 $= \underline{\quad}$

$7 \times 7 = \underline{\quad}$

$56 \div 7 = \underline{\quad}$

4×0

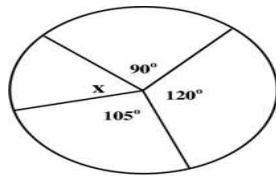
$48 \div 6 = \underline{\quad}$

$18 \div 6 = \underline{\quad}$

$7 \times 3 = \underline{\quad}$

$7 \times 6 = \underline{\quad}$

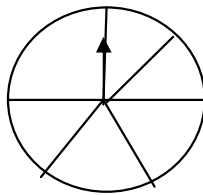
79. In a spinner game, the spinner has 4 regions of unequal size, as shown below.



How many degrees are in the missing angle x ? (Do NOT use a protractor.)

- A. 30°
- B. 45°
- C. 60°
- D. 75°

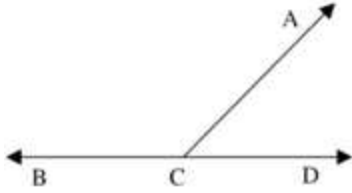
80. Raymond played with a game spinner shown below and realized that he could see angles in different sections of the spinner.



What is the sum of all these angles?

- A. 90°
- B. 185°
- C. 275°
- D. 360°

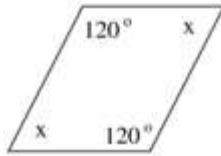
81. $\angle ACD$ measures 60° . Find the measurement of $\angle ACB$. (Do NOT use a protractor.)



- A. 120°
 B. 130°
 C. 160°
 D. 180°
82. Which of the following could be the measures of the interior angles of a triangle?

- A. $30^\circ, 30^\circ, 30^\circ$
 B. $30^\circ, 60^\circ, 90^\circ$
 C. $60^\circ, 90^\circ, 120^\circ$
 D. $60^\circ, 120^\circ, 180^\circ$

83. This is a parallelogram. In all parallelograms, the opposite angles are equal. Find the measure of angle x .

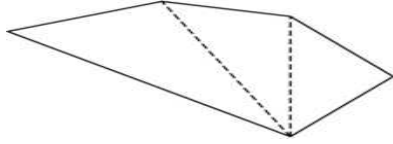


- A. 50°
 B. 60°
 C. 70°
 D. 120°
84. What is the measurement of angle A?



- A. 45°
 B. 60°
 C. 90°
 D. 120°

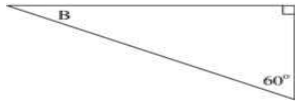
85. What is the sum of the angles in this polygon? Choose the correct answer, and then explain how you figured it out.



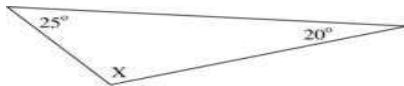
- A. 180°
 B. 360°
 C. 540°
 D. 720°
86. In a quadrilateral, two of the angles each have a measure of 110° , and the measure of the third angle is 90° . What is the measure of the remaining angle?

- A. 50°
 B. 90°
 C. 130°
 D. 160°

87. In this triangle, what is the measure of angle B?

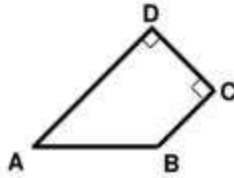


- A. 30°
 B. 45°
 C. 60°
 D. 180°
88. What is the measurement of angle X in this triangle?



- A. 90°
 B. 120°
 C. 130°
 D. 135°

89. If angle A equals 45° , what is the measure of angle B? Choose the correct answer, then explain how you figured it out.



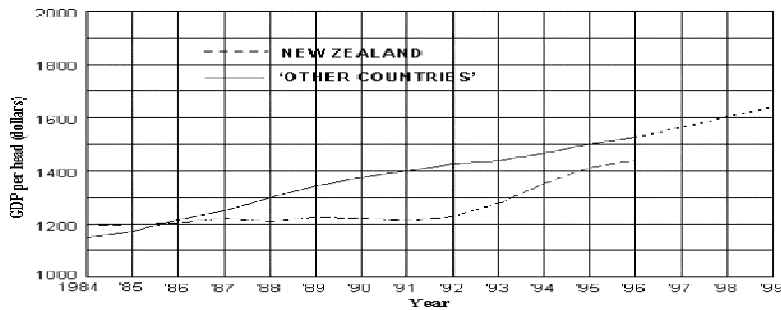
- A. 60°
- B. 130°
- C. 135°
- D. 145°

90. How many more magazines were sold in 1990 than in 1989?



- A. About 50 magazines
- B. About 100 magazines
- C. About 200 magazines
- D. About 250 magazines

91. Using the graph below, when did New Zealand's GDP increase the most?



Gross Domestic Product (GDP) for New Zealand and Other Countries

- A. 1986-87
- B. 1988-89
- C. 1992-93
- D. 1995-96

92. Using the graph above. In 1988 what was the difference of the GDP for Other Countries and New Zealand?

- A. About \$100 per head
- B. About \$200 per head
- C. About \$1200 per head
- D. About \$1300 per head

93. Family A has 2 children, Family B has 1 child, Family C has 1 child, and Family D has 4 children. What is the mean number of children for the families?

- A. 1
- B. 2
- C. 3
- D. 4

94. The set of data below represents the number of books read in one month by each member of the book club.

3, 6, 7, 3, 3, 9, 0, 0, 1, 3, 7, 2, 5, 9, 7

What is the mode number of books for this set of data?

- A. 0
- B. 3
- C. 7
- D. 9

What is the range number of books for the set of data above?

- A. 0
- B. 1
- C. 7
- D. 9

95. The data below show a set of Angela's golf scores. What is the mean of the scores listed?

84, 88, 88, 77, 73

- A. 73
- B. 82
- C. 84
- D. 88

96. Family A has 2 children, Family B has 0 children, Family C has 1 child, and Family D has 0 children. Find the mode for this data.

- A. 0
- B. 1
- C. 2
- D. 3

97. Find the difference:

$$\begin{array}{r} 701 \\ - 35 \\ \hline \end{array} \quad \begin{array}{r} 68 \\ - 27 \\ \hline \end{array} \quad \begin{array}{r} 100 \\ - 37 \\ \hline \end{array} \quad \begin{array}{r} 63 \\ - 47 \\ \hline \end{array} \quad \begin{array}{r} 35 \\ - 15 \\ \hline \end{array} \quad \begin{array}{r} 114 \\ - 37 \\ \hline \end{array} \quad \begin{array}{r} 66 \\ - 24 \\ \hline \end{array}$$

98. Find the product:

$$\begin{array}{r} 36.1 \\ \times 3.7 \\ \hline \end{array} \quad \begin{array}{r} 0.47 \\ \times 68 \\ \hline \end{array} \quad \begin{array}{r} 5.9 \\ \times 39 \\ \hline \end{array} \quad \begin{array}{r} 0.28 \\ \times 1.8 \\ \hline \end{array} \quad \begin{array}{r} 19 \\ \times 4.7 \\ \hline \end{array} \quad \begin{array}{r} 5.6 \\ \times 3.6 \\ \hline \end{array} \quad \begin{array}{r} 78 \\ \times .37 \\ \hline \end{array}$$

99. Last summer Samantha swam the backstroke in five swim meets. Her times were:

56 seconds 56 seconds 44 seconds 47 seconds 42 seconds

Find the mean of her times.

- A. 47
- B. 49
- C. 50
- D. 56

100. Mary's quiz scores were 92, 85, 78, 92, 71, 77, and 80. She told her mother she had an average of 92 for her quiz scores. Which term best describes her average score?

- A. Mean
- B. Median
- C. Mode
- D. Range

101. What is the mean of this set of numbers? 4, 8, 3, 2, 5, 8, 12

- A. 4
- B. 5
- C. 6
- D. 7

102. What is the median of this set of numbers? 4, 8, 3, 2, 5, 8, 12

- A. 6
- B. 8
- C. 5
- D. 4

103. What is the mode of this set of numbers? 8, 1, 3, 10, 8, 1, 2, 5, 6, 1, 88

104. Students collected books for a book drive. Five students collected the following number of books:
- Student 1: 17 books
 - Student 2: 8 books
 - Student 3: 10 books
 - Student 4: 8 books
 - Student 5: 12 books

What is the mode of this set of data? _____

What is the mean number of books collected per student?

- A. 8 books
 - B. 10 books
 - C. 11 books
 - D. 12 books
105. The mean of nine test scores is 61. If a score of 71 is added to the group of scores, what is the new mean?
- A. 62
 - B. 65
 - C. 66
 - D. 68
106. What is the difference between the mean salary of the workers and the mean salary of everyone including the President and Vice-President? You may use a calculator.

Position	Salary
President	\$256,000
Vice-President	\$127,000
Worker #1	\$ 35,000
Worker #2	\$ 20,000
Worker #3	\$ 18,000
Worker #4	\$ 31,000
Worker #5	\$ 24,000
Worker #6	\$ 21,000
Worker #7	\$26,000

- A. \$25,000
- B. \$37,000
- C. \$45,000
- D. \$62,000

107. The table shows the scores of 20 students on a history test. What is the average student score? You may use a calculator.

Score	Number of Students
90	3
85	5
80	3
75	4
70	2
60	0
55	3

- A. 26
 B. 74
 C. 77
 D. 85
108. Sandy had test scores of 20, 25, 17, 22 and 21 (out of 25 total). What is her average (mean) score?

On the next 3 tests Sandy's scores were 24, 24 and 23. What is her mean now?

- A. 24
 B. 23
 C. 22
 D. 21

Explain how you figured this out.

109. Philip solved the following problem incorrectly. Explain his mistake.

$$\begin{array}{r} 1659 \\ \times 21 \\ \hline 1659 \\ +3318 \\ \hline 4977 \end{array}$$

110. Use mental math to solve:

A. $400 \times 3 =$ _____ $60 \times 60 =$ _____ $8,000 \times 20 =$ _____

B. $1600 \div 80 =$ _____ $250 \div 50 =$ _____ $12000 \div 400 =$ _____

111. Find the product:

$$\begin{array}{r} 36 \\ \times 47 \\ \hline \end{array}$$

$$\begin{array}{r} 47 \\ \times 68 \\ \hline \end{array}$$

$$\begin{array}{r} 59 \\ \times 39 \\ \hline \end{array}$$

$$\begin{array}{r} 28 \\ \times 18 \\ \hline \end{array}$$

$$\begin{array}{r} 19 \\ \times 47 \\ \hline \end{array}$$

$$\begin{array}{r} 56 \\ \times 36 \\ \hline \end{array}$$

$$\begin{array}{r} 78 \\ \times 37 \\ \hline \end{array}$$

112. Construct a factor tree for the composite number 27. Express your answer in exponential notation (powers).

113. Nancy and Gabe had a pizza with 12 pieces. Brent ate $\frac{1}{3}$ of a pizza and Kayla ate $\frac{1}{4}$ of a pizza. How much of the whole pizza **is left?** Show your work.

114. Show which is larger, smaller or equal using the less than symbol (<), the greater than symbol (>), or the equal sign (=).

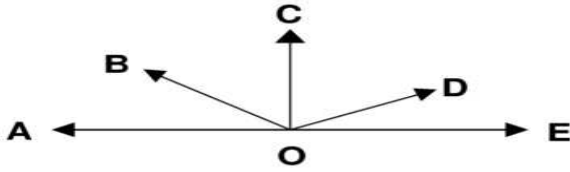
$$1 \text{ in.}^3 \text{ _____ } 1 \text{ ft.}^3$$

$$1 \text{ cm.}^3 \text{ _____ } 1 \text{ m.}^3$$

$$2 \text{ ft.}^3 \text{ _____ } 1 \text{ yd.}^3$$

115. Explain why the formula for finding the area of a triangle makes sense in terms of the area of a rectangle (use a drawing in your explanation).

116. Use a protractor to measure the following angles. Then classify them as acute, obtuse, or right angles.



$\angle DOE =$ _____ This angle is _____ (acute, obtuse or right?)

$\angle COD =$ _____ This angle is _____ (acute, obtuse or right?)

$\angle BOE =$ _____ This angle is _____ (acute, obtuse or right?)

$\angle AOC =$ _____ This angle is _____ (acute, obtuse or right?)

117. This parallelogram has one angle of 50° . What are the measures of the other angles?



A. Measure of angle A _____

B. Measure of angle B _____

C. Measure of angle C _____

118. Show your work: $723.89 + 23.8 =$ _____

119. Show your work: $824.03 - 123.8 =$ _____

120. Show your work: $4.3 \times 6.8 =$ _____

121. Do the following divisions. Then check your answer. Show your work. No calculators!

Check your work:

A. $1524 \div 6 = \underline{\hspace{2cm}}$

$$\begin{array}{r} \times 6 \\ \hline 1524 \end{array}$$

B. $380 \div 10 = \underline{\hspace{2cm}}$

$$\begin{array}{r} \times 10 \\ \hline 380 \end{array}$$

C. $4235 \div 10 = \underline{\hspace{2cm}}$

$$\times \underline{\hspace{2cm}}$$

D. $4 \overline{) 769}$

$$\times \underline{\hspace{2cm}}$$

E. $5 \overline{) 765}$

$$\times \underline{\hspace{2cm}}$$

122. Find the products or quotient.

Any multiplication problem you do not know quickly please practice on flash cards.

$$\begin{array}{r} 4 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 0 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 1 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 6 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times 6 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 9 \\ \hline \end{array}$$

$$2\overline{)16} \quad 3\overline{)3} \quad 3\overline{)15} \quad 5\overline{)20} \quad 3\overline{)18} \quad 3\overline{)6} \quad 5\overline{)15} \quad 7\overline{)56} \quad 9\overline{)27} \quad 4\overline{)16} \quad 7\overline{)21} \quad 4\overline{)20} \quad 7\overline{)28}$$

$$\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 6 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ \times 12 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 0 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times 9 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$$

$$72 \div 8 = \underline{\quad\quad\quad} \quad 8 \div 2 = \underline{\quad\quad\quad} \quad 72 \div 9 = \underline{\quad\quad\quad} \quad 6 \div 1 = \underline{\quad\quad\quad}$$

$$8\overline{)16} \quad 3\overline{)21} \quad 9\overline{)18} \quad 4\overline{)24} \quad 2\overline{)6} \quad 1\overline{)8} \quad 5\overline{)35} \quad 7\overline{)35} \quad 3\overline{)27} \quad 6\overline{)36} \quad 3\overline{)24} \quad 2\overline{)0} \quad 4\overline{)32}$$

$$\begin{array}{r} 6 \\ \times 9 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times 9 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 1 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ \times 4 \\ \hline \end{array}$$

123. Convert from fraction, decimal and percentage.

Fraction (simplest form)

Decimal

Percentage

$\frac{1}{2}$

20%

.08

$\frac{3}{10}$

Answer the following in simplest form. Show your work.

124. $\frac{1}{2} + \frac{3}{4} =$ _____

125. $2\frac{2}{3} + 1\frac{2}{3} =$ _____

126. $\frac{3}{4} - \frac{1}{2} =$ _____

127. $7\frac{2}{3} - 3\frac{1}{3} =$ _____

128. $\frac{1}{2} - \frac{2}{3} =$ _____

129. $8 \times \frac{1}{3} =$ _____

130. $\frac{2}{3} \times \frac{1}{2} =$ _____

131. $\frac{3}{4} + \frac{2}{3} =$ _____

132. $\frac{2}{3} + 6 =$ _____

133. $3 \div \frac{1}{2} =$ _____