Q 1. Use what you know about rounding to answer Parts A, B, and C.

Part A
Round 2.097 to the nearest whole number. Explain your answer.

Part B
Round 15.0974 to the nearest hundredth. Explain your answer.

Part C
Two processes for estimating the expression $6.6 - 1.3$ to the nearest whole number are listed below.

Process 1: Round 6.6 to 7 and round 1.3 to 1, and then subtract.

Process 2: Subtract 1.3 from 6.6, and then round the final answer.

Justify which process should be used to estimate $6.6 - 1.3$. Explain your answer.

Q 2. Charlene and Oliver opened a lemonade stand with $4\frac{1}{2}$ gallons of lemonade. In the first hour, they sold $1\frac{3}{4}$ gallons.

Part A
How many gallons of lemonade did Charlene and Oliver have left after the first hour? Show your work.

Part B
There are 128 ounces in 1 gallon. If 8 ounces of lemonade was in each serving, how many servings of lemonade are left after the first hour? Show your work.

Part C
During the hours the lemonade stand was open, 3 different customers bought lemonade and put it into their own containers. The numbers of gallons of lemonade each of the 3 customers bought are listed below.

The first customer bought $\frac{3}{8}$ of a gallon.

The second customer bought $\frac{1}{4}$ of a gallon.

The third customer bought $\frac{1}{2}$ of a gallon.
What is the total number of gallons of lemonade the 3 customers bought? Show your work.

Part D
During the hours the lemonade stand was open, Charlene and Oliver made the number of gallons listed below plus extra gallons.

They made $4\frac{1}{2}$ gallons to open the stand.

They made the number of gallons for the 3 customers in Part C.

If they sold a total of $8\frac{3}{8}$ gallons, how many extra gallons did they have to make? Show your work.

Q 3. Joe has 3 pieces of yarn. The table shows the length of each piece of yarn.

Yarn Lengths

Piece of Yarn	Length (meters)	Length (centimeters)
A	0.042	
B	0.046	
C	0.041	

Part A
Copy and complete the table to show the lengths, in centimeters, of the yarn.

Part B
Use the lengths of the yarn, in centimeters, of Piece A and Piece C and write a number sentence, using $>$, $=$, or $<$,to compare the two lengths. Explain your number sentence.

Part C
Joe wants to use fractions to represent the yarn lengths in centimeters. Using the yarn lengths from your table in Part A, write each yarn length as a fraction.

Part D
Create a line plot that shows all of your lengths from Part C. Be sure to include all labels.

Q 4. Irma has $31.84 to buy two of the four items listed.

$15.96 toy

$17.08 shirt

$16.13 book

$15.68 flowers
What is one possible combination of two items Irma can buy?

Q 5. Tyrone weighed 1 box of macaroni on a scale and found it weighed 0.6 pounds. What could Tyrone do to find the total weight of 100 boxes of macaroni?

A)Divide 0.6 by 10^3.

B)Divide 0.6 by 10^2.

C)Multiply 0.6 by 10^2.

D)Multiply 0.6 by 10^3.

Q 6. Which statement correctly rounds a decimal to the nearest hundredth?

A)The number 0.4737 rounds to 0.48.

B)The number 0.5261 rounds to 0.53.

C)The number 0.6429 rounds to 0.643.

D)The number 0.7813 rounds to 0.782.

cans of soup on the shelves. Which statement explains the mistake the manager made?

A)The 3 was not carried after multiplying 4 by 8.

B)No zeroes were inserted after the product of 1 and 128.

C)Two zeroes were inserted after the product of 1 and 128.

D)The 1 was not carried so it could be added to the product of 1 and 4.

Q 8. Teresa planted vegetables on $11\frac{1}{2}$ acres. Of the $11\frac{1}{2}$ acres, $\frac{1}{5}$ of them were planted with corn. Which expression will determine the number of acres Teresa planted with corn?

A) $\left(11 + \frac{1}{5}\right) + \left(\frac{1}{2} + \frac{1}{5}\right)$

B) $\left(11 \times \frac{1}{5}\right) \times \left(\frac{1}{2} \times \frac{1}{5}\right)$

C) $\left(11 + \frac{1}{5}\right) \times \left(\frac{1}{2} + \frac{1}{5}\right)$

D) $\left(11 \times \frac{1}{5}\right) + \left(\frac{1}{2} \times \frac{1}{5}\right)$

Q 9. A company's first shipment of the day contains two different sizes of boxes. The weight of each box and the quantity of each box size received are shown in the table.

First Shipment

Box Size	Weight (pounds)	Number of Boxes
Medium	$3\frac{3}{4}$	6
Large	$8\frac{1}{2}$	7

Part A
What is the total weight of all of the medium boxes in the first shipment? Show your work or explain your answer.

Part B
What is the total weight of all of the large boxes in the first shipment? Show your work or explain your answer.

Part C
The second shipment of the day contains 10 medium boxes and 10 large boxes. The boxes in the second shipment are heavier than the boxes in the first shipment.

- The medium boxes each weigh 2 times the weight of the medium boxes in the first shipment.
- The large boxes each weigh 3 times the weight of the large boxes in the first shipment.

Write an expression that can be used to determine the combined weight of the boxes in the second shipment. Evaluate your expression and show your work.

Q 10. The table shows the lengths of six covered bridges.

Covered Bridges

Bridge	Length (meters)
Benetka Road Bridge	42.06
Olin's Bridge	35.05
Doyle Road Bridge	28.65
Giddings Road Bridge	32.61
Harpersfield Bridge	69.49
Smolen Gulf Bridge	186.7

A company plans to build a new covered bridge with a length of 18.6 meters.

Part A
Compare the length of the new covered bridge with the Smolen Gulf Bridge. How does the value of the number 8 in each number differ between the two lengths?

Part B
Use the greater than symbol or the less than symbol to compare the length of Benetka Road Bridge to the length of Olin's Bridge. Explain your answer.

Part C
Megan states that the Smolen Gulf Bridge was 3 times as long as the next longest bridge. Is Megan's statement correct? Explain your answer.

Q 11. Audrey works at a candy store. She is putting all the jelly beans from four 3-pound bags into smaller containers.

- One 3-pound bag will be put in $\frac{1}{6}$-pound containers.
- One 3-pound bag will be put in $\frac{1}{4}$-pound containers.
- One 3-pound bag will be put in $\frac{1}{3}$-pound containers.
- One 3-pound bag will be put in $\frac{1}{2}$-pound containers.

Part A
How many containers of each size will Audrey need? Show your work and label your answers.

Part B
Use the table shown to estimate how many jelly beans will be in each of the four sizes of containers. There are 16 ounces in a pound. Show your work and label your answers.

Weight of Jelly Beans

Number of Jelly Beans	Weight (ounces)
36	3
72	6
108	9

Q 12. In March, Emily read $1\frac{3}{4}$ books and Eric read $3\frac{1}{2}$ books.

Part A

Emily wrote the equation $1\frac{3}{4} + 3\frac{1}{2} = 5\frac{1}{4}$ to represent the total number of books she and Eric read. Create a model to explain why Emily's equation is correct or incorrect.

Part B

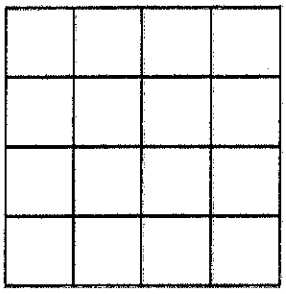
Eric says the total of books read is $4\frac{5}{4}$. Explain whether Eric's total is correct or incorrect.

Part C

In April, Emily read a total of 2 books. Emily read $\frac{1}{4}$ of the number of books Eric read. How many books did Eric read in April? Show your work or explain your answer.

Q 13. Jessica has a patio that is $3\frac{1}{2}$ feet wide and $7\frac{1}{2}$ feet long. She is placing square tiles on the floor of her patio. The side length of each square tile is $\frac{1}{4}$ foot.

1-Square Foot Tile



□ = $\frac{1}{16}$ one square unit

Part A

What is the area of the patio that needs to be covered in tiles? Show your work.

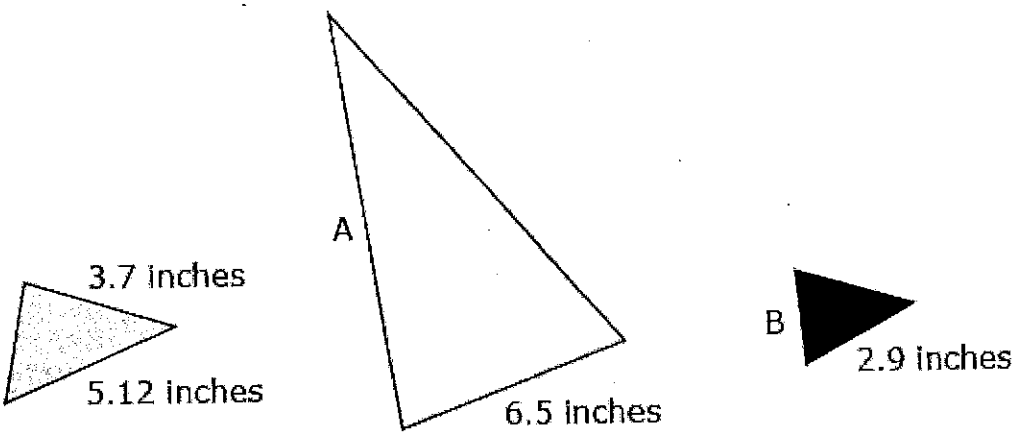
Part B

How many $\frac{1}{4}$ foot square tiles will fit on each side of the patio to be tiled? Use a model or an equation to show your work.

Part C

The $\frac{1}{4}$ foot square tiles that Jessica wants to buy cost $5.60 per square foot. How much does a $\frac{1}{4}$ foot square tile cost? Show your work.

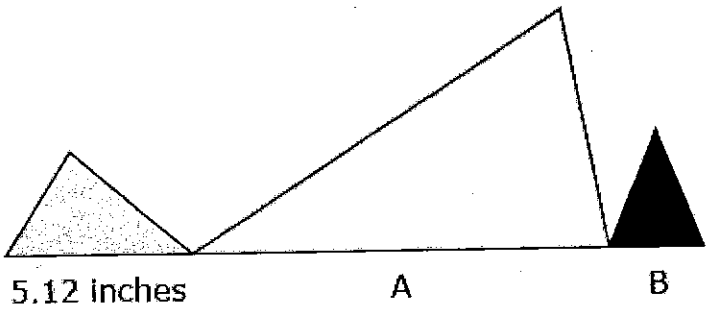
Q 14. The diagram shows the dimensions of the longest and shortest sides of three triangles.



Part A
Side A of the white triangle is 2.5 times the length of the longest side of the gray triangle. What is the length, in inches, of side A? Show your work.

Part B
Side B of the black triangle is half the length of the longest side of the gray triangle. What is the length, in inches, of side B? Show your work.

Part C
The triangles will have the bases glued end-to-end on a paper strip, as represented in the diagram shown below.



What is the minimum length, in inches, the rectangular paper strip needs to be for all of the triangles to fit? Show your work.

Part D
The paper strip that will be used is 24 inches in length. The triangles will be centered on the paper strip with an equal space left on both ends. What will be the distance, in inches, from the one end of the paper strip to the nearest triangle? Show your work or explain your answer.

Q 15. Evan's mother used $\frac{1}{3}$ pound of beef, $\frac{1}{2}$ pound of shrimp, and 3 pounds of pasta to make dinner for 4 people.

Part A
Each person will receive an equal share of beef with none leftover. What is the amount, in pounds, of each serving of beef? Write your answer in fraction form and show your work.

Part B
Each person will receive an equal share of shrimp with none leftover. What is the amount, in pounds, of each serving of shrimp? Write your answer in fraction form and show your work.

Part C
Each person will receive an equal share of pasta with none leftover. What fraction represents the amount, in pounds, of each serving of pasta? Write your answer in fraction form.

Part D

Evan ate only $\frac{1}{2}$ of the pasta that he received. What is the amount, in pounds, of pasta that Evan ate? Write your answer in fraction form and show your work.

Q 16. A coach spent a total of $56.40 on 10 pizzas for the soccer team. There are 12 players on the soccer team. Each player eats an equal amount of pizza. Altogether, the soccer team ate $\frac{4}{5}$ of the pizzas.

Part A
How many pizzas did the soccer team eat? Show your work.

Part B
What fraction of a pizza did each player eat? Explain your answer.

Q 17. The lengths of four rhinoceroses, or rhinos, are shown in the chart.

Lengths of Rhinos

Rhino	Length (meters)
A	3.528
B	3.912
C	3.625
D	3.68

Part A
Which rhino is the longest? Which is the shortest?

A 5th rhino is longer than the shortest one from the chart, but not as long as the longest rhino. What could be the length of the 5th rhino? Explain your answer.

Part B
Round each value in the chart to the nearest tenth.

Part C
Mark said that if all 4 rhinos stood end to end they would be more than 15 meters in length. Is Mark correct? Explain your answer.

Part D
How is the value of the 8 in the number 3.528 different from the value of the 8 in the number 3.68? Use what you know about place value to explain your answer.

Q 18. A car-sized robot named "Curiosity" is exploring the surface of Mars. It beamed a song from Mars back to Earth over a distance of approximately 3.3×10^8 miles. The robot also took pictures of a mountain that is approximately 3 miles high.

Part A
How many million miles did the song have to go from Mars back to Earth? Explain your work.

Part B
There are 5,280 feet in a mile. How many feet are equal to 3 miles? Show your work.

Q 19. Carbon makes up 0.032 percent of Earth's crust. Which expression has a value of 0.032?

A) $3.2 + 10^2$

B) 3.2×10^2

C) $3.2 + 10^3$

D) 3.2×10^3

Q 20. Energy travels down the cables between electrical pylons at about 155,000 miles per second. Which expression is equal to 155,000?

A) 155×10^2

B) 155×10^3

C) 155×10^5

D) 155×10^6

Q 21. Workers placed 4 additional rows of seating in each of the 8 theatres at a movie complex. Each additional row contained 28 seats. What is the total number of seats that were added to the movie complex?

A) 886

B) 896

C) 906

D) 996

Q 22. Mr. Blake measures the pencil shown.

Which expression could be used to determine the total length, in inches (in.), of the pencil?

A) $4 + 2\left(\frac{1}{10}\right) + 9\left(\frac{1}{1000}\right)$

B) $4 \div 2\left(\frac{1}{10}\right) + 9\left(\frac{1}{100}\right)$

C) $5 + 2\left(\frac{1}{10}\right) \div 9\left(\frac{1}{1000}\right)$

D) $5 + 2\left(\frac{1}{10}\right) \div 9\left(\frac{1}{100}\right)$

Q 23. Amy's science class has a group of 24 students. Miguel's science class has $\frac{2}{3}$ the number of students as Amy's class. Which explanation correctly describes whether Miguel's class will have more or fewer students than Amy's class?

A)Miguel's class will have fewer students because $\frac{2}{3}$ is greater than 1.

B)Miguel's class will have fewer students because $\frac{2}{3}$ is less than 1.

C)Miguel's class will have more students because $\frac{2}{3}$ is greater than 1.

D)Miguel's class will have more students because $\frac{2}{3}$ is less than 1.

Q 24. Michael can run $\frac{4}{9}$ of a mile in 5 minutes. He claims he can run 1 mile in 10 minutes. Is he correct?

A) Yes, because $\frac{4}{9}$ is equal to $\frac{1}{2}$ so he can run 1 mile in 10 minutes.

B) Yes, because $\frac{4}{9}$ is greater than $\frac{1}{2}$ so he can run 1 mile in 10 minutes.

C) No, because $\frac{4}{9}$ is less than $\frac{1}{2}$ so it will take him longer than 10 minutes to run 1 mile.

D) No, because $\frac{4}{9} \times 5 = \frac{20}{9}$ and this is more than 1 mile.

Q 25. Allison painted $\frac{2}{7}$ of her room before lunch and $\frac{2}{3}$ of her room after lunch. How much of the room did she paint before and after lunch?

A) $\frac{4}{21}$

B) $\frac{2}{5}$

C) $\frac{1}{2}$

D) $\frac{20}{21}$

Q 26. Eight teachers are sharing a package of 109 number cubes. About how many number cubes will each teacher receive? Between which two whole numbers does your answer lie?

A) Between 10 and 11

B) Between 11 and 12

C) Between 12 and 13

D) Between 13 and 14

Q 27. Eriko is trying to estimate the number of candy bars she would have to sell in order to collect $10.00. If each candy bar cost $0.48, about how many would she have to sell?

A)10

B)20

C)30

D)40

Q 28.

Alice bought two pairs of socks for $2.54 each, including tax. She paid with a ten dollar bill. How much change should she receive?

A)$4.92

B)$5.08

C)$7.92

D)$7.46

Q 29. White Mountain National Forest covers more than 780,000 acres. One-seventh of the forest is reserved as wilderness. Approximately how many acres are in the wilderness area?

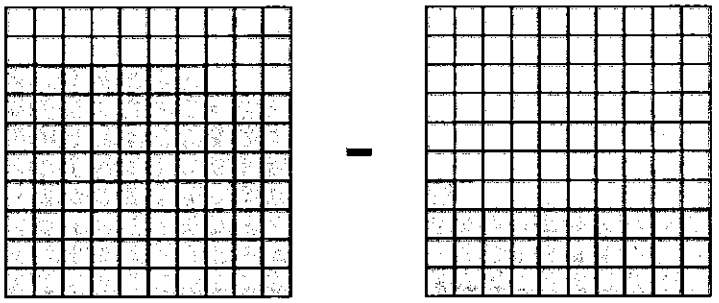
A)400,000

B)320,000

C)260,000

D)110,000

Q 30. The model shown represents the numbers in a subtraction expression.



What number represents the value of the expression?
A)0.046

B)0.108

C)0.46

D)1.08

