

MSA Review  
Grade 6

1

This problem is solved without a calculator.

Simplify.

$$12 + 4 \times (12 - 9)$$

- A. 24
- B. 48
- C. 51
- D. 55

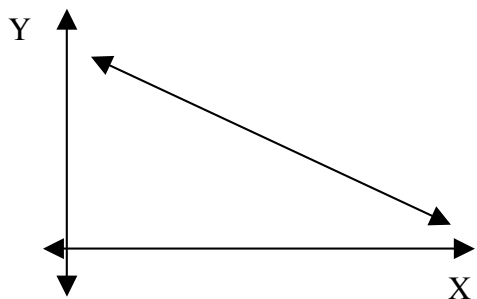
3

The measure of the first angle in a triangle is  $48^\circ$ . The measure of the second angle is  $32^\circ$ . What is the measure, in degrees, of the third angle?

- A.  $20^\circ$
- B.  $80^\circ$
- C.  $100^\circ$
- D.  $120^\circ$

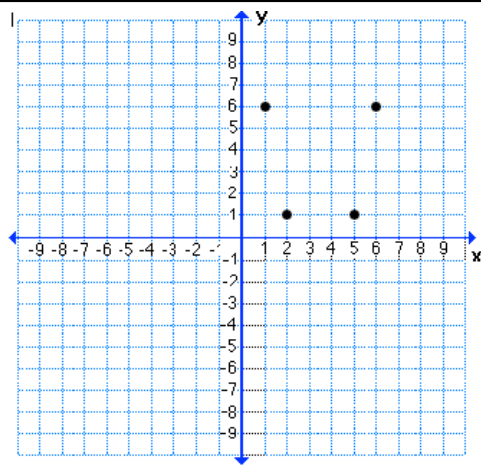
2

Look at the line on the coordinate plane below.



- A. The more hours a person works, the more money the person earns.
- B. The farther a car is driven, the less gas remains in the tank
- C. Over several years, the value of Rita's stock has remained the same.
- D. John and Mike each studied 45 minutes for a quiz. John scored 80 on the quiz and Mike scored 85 on the quiz.

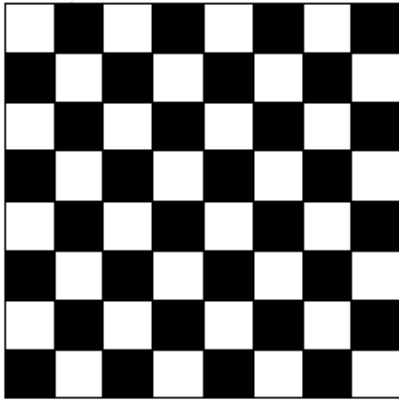
4



Maurice is given the coordinates of four points (1,6), (6,6), (5,1) and (2,1). If he connects the points together, what quadrilateral is created?

- A. a rectangle
- B. a square
- C. a trapezoid
- D. a rhombus

5



Note: The figure is not drawn to scale.

The square chessboard shown has an area of 144 square inches. What is the length, in inches, of one side of the chessboard.

- A. 6 inches
- B. 12 inches
- C. 36 inches
- D. 72 inches

7

This problem is solved without a calculator.

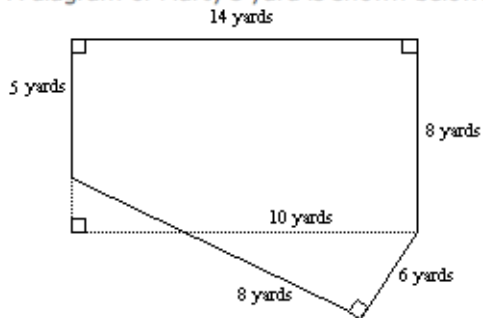
Joshua buys a book that is on sale for  $\frac{1}{5}$  off.

What is the percent of discount for the price of the book?

- A.  $\frac{1}{20}\%$
- B.  $\frac{1}{5}\%$
- C. 5%
- D. 20%

6

A diagram of Marty's yard is shown below.



Note: The figure is not drawn to scale.

What is the area, in square yards, of Marty's yard?

- A. 106 square yards
- B. 112 square yards
- C. 130 square yards
- D. 136 square yards

8

George is making two cakes using two different recipes. One recipe uses

$1\frac{1}{3}$  cups of flour and the other recipe

uses  $1\frac{3}{4}$  cups of flour. What is the total amount of flour, in cups, needed for both recipes.

- A.  $2\frac{1}{12}$  cups
- B.  $2\frac{4}{7}$  cups
- C.  $3\frac{1}{12}$  cups
- D.  $3\frac{3}{7}$  cups

9

Reggie is bowling. In the last 50 throws of his bowling ball, Reggie makes a strike 18 times. Based on his last 50 throws, what is the experimental probability that Reggie will make a strike on the next throw?

- A. 0.09
- B. 0.18
- C. 0.27
- D. 0.36

10

Kathy tosses a penny 24 times. The penny lands either with the head side showing or the tail side showing. The data below shows how the penny lands each time.

Heads	Tails	Heads	Tails
Tails	Tails	Heads	Tails
Tails	Tails	Tails	Tails
Heads	Heads	Tails	Heads
Tails	Tails	Tails	Tails
Tails	Tails	Tails	Tails

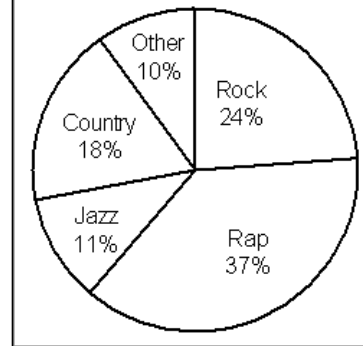
Kathy tosses the penny 100 more times. Based on the experimental probability determined from the data, what percent of times do you expect the penny will land on heads?

- A. 18%
- B. 25%
- C. 42%
- D. 75%

11

Fernando surveys the students at his school to find out their favorite type of music. The results are shown in the circle graph below.

**Favorite Music of Students**



What is the percent of students who chose rap or country as their favorite type of music?

- A. 18%
- B. 19%
- C. 37%
- D. 55%

12

Look at the expression below.

$$36 \div 3 + 6 \times 2$$

What is the value of the expression?

- A. 2
- B. 8
- C. 24
- D. 36

13

Pascal records the score from a basketball team's last 24 games, as shown below.

74	69	69	68	83	68	74	69
81	78	64	62	68	61	77	71
78	68	77	69	62	61	76	69

He displays the scores in this frequency table. Pascal's frequency table contains an error.

Basketball Scores

Range of Scores	Frequency
60 - 64	4
65 - 69	9
70 - 74	3
75 - 79	5
80 - 84	2

Which statement best describes the error in Pascal's frequency table?

- A. The 75 - 79 range has too few scores.
- B. The 80 - 84 range has too many scores.
- C. The total frequency is too low.
- D. The total frequency is too high.

14

Look at the expression below.

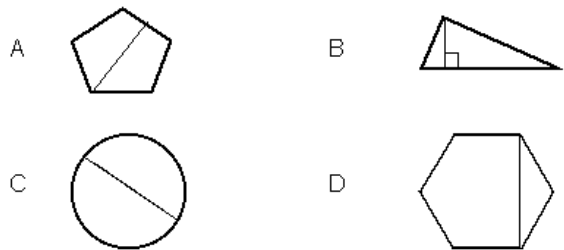
Which expression has a value of 24?

- A.  $6 + 2 \times 3$
- B.  $2 \times 3 + 6 \times 2$
- C.  $4(2 + 4)$
- D.  $3(7 + 3)$

15

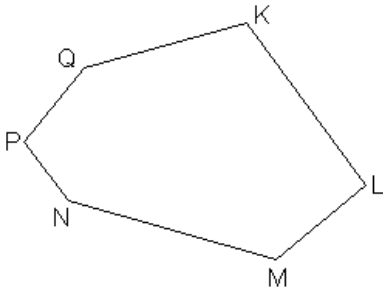
Look at the line segments drawn in each geometric figure below.

Which geometric figure shows a line segment that is also a diagonal?



16

Jake draws hexagon KLMNPQ, as shown below.



What is the greatest number of diagonals Jake can draw from any one vertex?

- A. 3
- B. 4
- C. 5
- D. 6

18

A desk drawer contains 6 black pens, 5 blue pens, 4 red pens, and 5 green pens. Ron picks one pen from the drawer without looking. What is the probability Ron picks a blue pen?

- A. 0.05
- B. 0.10
- C. 0.25
- D. 0.50

17

Allison plays baseball. In the last 25 times at bat she made a hit 4 times. Based on her last 25 bats, what is the experimental probability that Allison will make a hit on her next time at bat?

- A. 0.04
- B. 0.16
- C. 0.25
- D. 0.40

19

Jenn is practicing her basketball shooting. She took 25 practice shots and her results are listed below.

Made Missed Missed Made Made  
 Missed Made Made Missed Missed  
 Missed Made Made Made Made  
 Made Missed Made Missed Made  
 Made Made Missed Made Missed

Based on the results, what is the experimental probability she will make her next shot?

- A. 10%
- B. 15%
- C. 40%
- D. 60%

20

Maria rolled a number cube 30 times and her results are shown below.

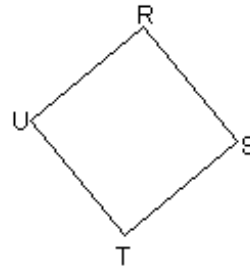
4	5	1	3	6	3	4	2	3	5
1	2	2	2	6	5	3	5	4	1
6	5	2	3	4	1	5	3	3	1

Based on her results, what is the experimental probability that Maria will roll an even number on her next roll?

- A. 0.12
- B. 0.18
- C. 0.40
- D. 0.60

22

Look at square RSTU shown below.

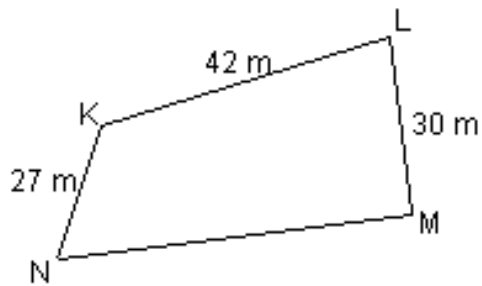


The perimeter of RSTU is 144 inches. What is the measure, in inches, of segment ST?

- A. 12 inches
- B. 36 inches
- C. 72 inches
- D. 288 inches

21

The perimeter of quadrilateral KLMN, as shown below, is 157 meters.



What is the measure, in meters, of segment MN.

- A. 57 meters
- B. 58 meters
- C. 59 meters
- D. 68 meters

23

The Hot Shot Soccer Team and the Super Stars Soccer Team will flip a coin to see which team will kick off first. How likely is it that the Hot Shots will win the kick off?

- A. least likely
- B. less likely
- C. more likely
- D. equally likely

24

Look at the equation below.  
 $x - 17.32 = 28.7$

Step A

Solve the equation for x

Step B

Explain why your value for x is correct. Use what you know about solving equations in your explanation. Use words, numbers, and/or symbols.

25

Look at the expression below.  
 $90 - 48 \div 6 + 2$

Step A

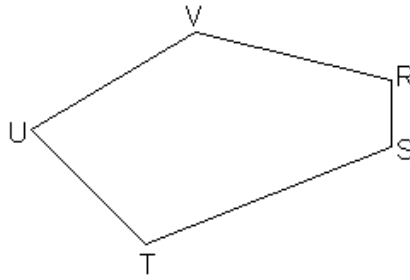
What is the value of this expression?

Step B

Explain why the value you determined is correct. Use what you know about order of operations in your explanation. Use words, numbers, and/or symbols in your explanation.

26

Look at the pentagon RSTUV below.



Step A

How many diagonals can be drawn from vertex R?

Step B

Use what you know about line segments to explain how you determined your answer. Use words, pictures and/or numbers in your explanation.

27

Amelia tossed a paper cup 10 times. The cup lands either on its side, on its base or on its top. The data below shows how the cup landed each time.

Base	Side	Side	Base	Side
Top	Side	Side	Side	Top

Step A

If Amanda tosses the cup now, what is the probability that it will land on its side? Express your answer as a decimal.

Step B

Explain how you determined your answer. Use what you know about probability in your explanation. Use words, numbers, and/or symbols in your explanation.

Juan flipped a coin 20 times. The results are listed below.

Heads	Tails	Tails	Tails	Heads
Tails	Heads	Tails	Heads	Tails
Heads	Tails	Heads	Tails	Heads
Tails	Tails	Tails	Heads	Heads

Step A

Based on Juan's results, what is the experimental probability that the coin will land on heads the next time it is flipped?

Step B

Explain why your answer is correct. Use what you know about probability in your explanation. Use words, numbers, and/or symbols in your explanation.

The perimeter of a rectangular yard is 200 feet. The measure of its width is 40 feet.

Step A

What is the length, in feet, of its length?

Step B

Use what you know about perimeter to explain how you determined the length. Use words, numbers and/or symbols in your explanation.

Use what you know about perimeter to explain why the length you determined is correct. Use words, numbers and/or symbols in your explanation.

The owner of a trucking company records the number of miles driven by 15 truck drivers in one week, as shown below.

384	398	386	391	437
436	399	388	402	436
394	381	399	412	385

The owner begins to display the data on a stem-and-leaf plot.

Step A

Complete the stem-and-leaf plot.

Number of Miles in One Week



Step B

- ✓ Explain why the stem you completed is correct. Use what you know about stem-and-leaf plots in your explanation. Use words, data, and/or symbols.
- ✓ Suppose the number 369 is added to the data set. Explain how the stem of the stem-and-leaf plot will change. Use words, data, and/or symbols in your explanation.