

Math Whiz Unit 1 Mastery

Number System Fluency

Name: _____

Class Period: 1 2 3 4 Date: _____

Dividing Fractions

- 1) The county recreation department cleared a $\frac{3}{4}$ mile long walking trail in Washington Park. There will be a small sign every $\frac{1}{12}$ mile along the trail. How many signs are needed?
A) 4 B) 9 C) 10 D) 12
- 2) Ryan bought $2\frac{1}{4}$ pounds of almonds and divided them into bags with $\frac{1}{8}$ pound in each bag. How many bags was Ryan able to fill?
A) 16 B) 18 C) $\frac{9}{32}$ D) $2\frac{1}{32}$
- 3) What is the value of the expression $\frac{3}{8} \div 1\frac{1}{2}$?
A) 4 B) 5 C) $\frac{1}{4}$ D) $2\frac{9}{16}$
- 4) Keisha cuts a $\frac{2}{3}$ foot rope into $\frac{1}{12}$ foot pieces. How many pieces of rope was she able to cut? Hint: **KCF**
A) 4 B) 6 C) 8 D) 12

Long Division

- 5) A local bank donated 4,074 pencils to distribute to the 42 sixth grade classes in the district. How many pencils did each class receive?
A) 90 B.) 97 C) 102 D) 907
- 6) Charlotte read a 608 page book in 16 hours last month. How many pages per hour was that?
A) 3.8 B) 38 C) 48 D) 9,728

Decimal Operations

- 7) What is 16.44 divided by 2.4?
A. 6.85 B. 68.5 C. 685 D. 6,850

- 8) A cheetah can run 112.65 kilometers per hour. A pronghorn antelope can run 98.1 kilometers per hour. **How much faster** is the cheetah than the antelope?
A. 10.284 B. 14.55 C. 102.84 D. 210.75
- 9) On a field trip, a 6th grade class traveled 19.955 kilometers by train, 7 kilometers by bus, and 2.3 kilometers by car. How far did they travel **all together**?
A. 19,985 km B. 22.955 km C. 29.255 km D. 1.12985 km
- 10) The Dixon family drove their car an average of 1200 miles per month. If they owned the car for 3.5 months, how many miles did they drive?
A. 420 miles B. 3,650 miles C. 4,200 miles D. 4,250 miles

GCF & LCM

- 11) Mr. Fraser asked four students in his class to find the greatest common factor of 24 and 36. Which answer is correct?
A. 2 B. 3 C. 6 D. 12
- 12) For exercise, Cindy swims every 6 days and jogs every 8 days. She did both today. How many days from now until she swims and jogs again?
A. 2 days B. 14 days C. 24 days D. 48 days
- 13) What is the GCF of 60 and 90?
A. 10 B. 30 C. 60 D. 180
- 14) What is the LCM of 10 and 12?
A. 2 B. 6 C. 60 D. 120

Unit 1 Mastery Score:

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Math Whiz Unit 2 Mastery

Ratios and Proportional Reasoning

Name: _____

Class Period: 1 2 3 4

Date: _____

Ratios, Rates, & Unit Rates

- 1) A youth ice hockey game has three 20-minute periods. Colin plays 12 minutes each period. Which ratio represents **Colin's playing time compared to the total number of minutes of playing time possible**?
- A) 1 to 4 B) 3 to 20 C) 1 to 5 D) 3 to 5
- 2) The local grocery store is having a sale on watermelons. Mr. Jackson purchases 10 watermelons for a school picnic. He pays \$39.90 for the watermelons. What is the **price of each** watermelon?
- A) \$0.39 B) \$3.90 C) \$3.99 D) \$4.50
- 3) In science class, students are learning about organic compounds. An acetic acid molecule is made of 2 carbon atoms, 2 oxygen atoms, and 4 hydrogen atoms. What is the ratio of carbon atoms to oxygen and hydrogen atoms?
- A) 1:3 B) 1:4 C) 2:3 D) 1:2
- 4) Hannah found that an antivirus program on her personal computer scans 182 megabytes of data in 7 seconds. At what rate does her antivirus program scan the data?
- A) 25 megabytes per sec B) 26 megabytes per sec
C) 28 megabytes per sec D) 30 megabytes per sec
- 5) A train travels 210 miles in 3 hours, moving at a constant speed. At this rate, how long will it take for the train to travel 350 miles?
- A) 5 hours B) 7 hours C) 8 ½ hours D) 70 hours
- 6) Mrs. Silva orders 5 pizzas for every 20 students working on the campus clean-up. How many pizzas should she order if 36 students participate?
- A) 8 B) 9 C) 10 D) 12

Measurement

- 7) The male elephant at the city zoo weighs 8,000 pounds, which is the same as 4 tons. The female elephant weighs 7,000 pounds. How many tons does she weigh?
- A) 3 ¼ B) 3 ½ C) 3 ¾ D) 3 $\frac{7}{10}$
- 8) Victor needs 30 feet of rope. The rope he wants to buy is sold by the yard. If there are 3 feet in 1 yard, how many yards should he buy?
- A) 10 B) 13 C) 33 D) 90
- 9) An architect builds a model of a building in the shape of a rectangular prism. The model is 50.8 centimeters long. What is the length of the model in inches (2.54 cm = 1 in.)?
- A) 10 inches B) 15 inches C) 20 inches D) 25 inches
- 10) Convert:
- 16 g = ____ kg 3.5 m = ____ cm 6mL = ____ L

Percents

- 11) At Madison middle school, 60% of the 800 students participate in music. How many students participate in music?
- A) 133 B) 400 C) 480 D) 720
- 12) At Sydney's school, 85% of the girls attend the Spring Carnival. If 170 girls attend the carnival, how many girls are there in all?
- A) 144 B) 145 C) 200 D) 370

Unit 2 Mastery Score:

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Math Whiz Unit 3 Mastery

Exponents, Order of Operations and Evaluating Expressions

Name: _____

Class Period: 1 2 3 4

Date: _____

Exponents, Order of Operations, & Evaluating Expressions

- 1) Which shows $8 \cdot 8 \cdot 8$ in **exponential form**?
- A) 3^8 B) 8^3 C) 512 D) $3 \cdot 8$
- 2) Find the value of 3^4 .
- A) 12 B) 34 C) 64 D) 81
- 3) What is the value of 17^0 ?
- A) 0 B) 1 C) 17 D) cannot be determined
- 4) Evaluate: $\frac{(1+2)^3-12}{5}$
- A) 0.6 B) 3 C) 4 D) 5
- 5) Evaluate: $5^2 - (2 \times 8) + 9$
- A) 0 B) 3 C) 17 D) 18
- 6) Evaluate: $5m^2 \div (2m)$ for $m = 4$
- A) 5 B) 10 C) 18 D) 50
- 7) Evaluate $c^2 - 2b$ if $b = 12$ and $c = 7$
- A) 10 B) 25 C) 37 D) 198

Translating Words to Expressions

- 8) Which phrase is **NOT** the same as $2x + 5$?
- A) The sum of 5 and twice a number
B) 5 more than the product of 2 and x
C) 5 added to 2 groups of x
D) Twice the sum of x and 5
- 9) Which algebraic expression represents how much prize money was won: "\$20 less than last year's prize."
- A) $p - 20$ B) $20 - p$ C) $20p$ D) $20 < p$
- 10) Mila's dog weighs 4 pounds more than the weight of Keiko's dog. Which expression could be used to find the weight of Mila's dog?
- A) $k + 4$ B) $4k$ C) $4 \div k$ D) $4 - k$

Identifying Parts of Expressions

- 11) Choose ALL of the **coefficients** in the expression. $5x^3 - 2x^3 + 6x - 4$
- A) 2 B) 3 C) 4 D) 5 E) 6
- 12) Which part of the expression $9^3 - (4 + 3)$ represents a sum?
- A) 9^3 B) $9^3 - 7$ C) 722 D) $(4 + 3)$

Equivalent Expressions

- 13) Simplify the expression: $8x + x^2 + 9x^2 + 5x$
- A) $23x^2$ B) $10x^2 + 13x$ C) $18x^2 + 5x$ D) $10x^4 + 13x$
- 14) Use the **distributive property** to find an equivalent expression for $3(2 + x)$.
- A) $6 + x$ B) $9x$ C) $6x$ D) $6 + 3x$
- 15) Use the **distributive property** to find an equivalent expression for $5(2x - 1)$.
- A) $10x - 5$ B) $10x - 1$ C) $5x$ D) $10x + 5$
- 16) Choose ALL expressions that are equivalent to $3x + 6 + x$.
- A) $4x + 6$ B) $2x + 4x + 3$ C) $10x$ D) $4(x + 6)$ E) $2(2x + 3)$
- 17) Which expression is equivalent to $2 + 3n + 2 + 9n$?
- A) $16n$ B) $3n + 8$ C) $4(3n + 1)$ D) $4(3n + 4)$

Unit 3 Mastery Score:

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Math Whiz Unit 4 Mastery

Equations and Inequalities

Name: _____

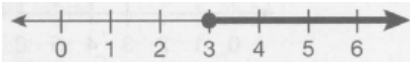
Class Period: 1 2 3 4 Date: _____

One-Step Equations

- 1) Solve the following equation: $a - 32 = 47$
A) 15 B) 77 C) 79 D) 81
- 2) Solve for c . $\frac{c}{5} = 65$
A) 13 B) 60 C) 325 D) 335
- 3) Solve for r : $1.2r = 24$
A) 2 B) 12 C) 20 D) 200
- 4) Franklin paid \$152 for 8 DVDs. Each DVD was the same price. Which shows the equation that represents the situation and price of each DVD?
A) $\frac{d}{8} = 152$; \$1,216 per DVD B) $d - 8 = 152$; \$160 per DVD
C) $d + 8 = 152$; \$144 per DVD D) $8d = 152$; \$19 per DVD
- 5) Gavin worked 16 hours last week and earned \$192. The equation $16d = 192$ can be used to find d , the number of dollars earned per hour. What is Gavin's hourly wage?
A) \$10.20 B) \$11.50 C) \$12.00 D) \$14.75

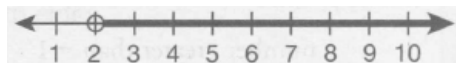
Inequalities

- 6) Which inequality is shown on the number line?



- A) $x > 3$ B) $x \geq 3$ C) $x < 3$ D) $x \leq 3$

- 7) Which inequality is shown on the number line?



- A) $x > 2$ B) $x \geq 2$ C) $x < 2$ D) $x \leq 2$

- 8) When the temperature drops below 15 degrees Celsius in a building, the furnace turns on. Which inequality statement represents the temperatures the furnace turns on?
A) $t < 15$ B) $t > 15$ C) $t \neq 15$ D) $t \geq 15$
- 9) Cooper spent at least \$25 at a music concert. Which inequality represents the amount of money Cooper spent?
A) $c > 25$ B) $c \geq 25$ C) $c < 25$ D) $c \leq 25$
- 10) Which of the following values is **NOT** a solution of $x - 4 < 15$?
A) 0 B) 15 C) 18 D) 19

Relationship Between Independent & Dependent Variables

- 11) The table below shows song downloads and total cost.

Songs (x)	3	5	8	10
Total Cost (y)	\$4.50	\$7.50	\$12.00	\$15.00

Which equation represents the relationship between the total cost (y) and songs downloaded (x)?

- A) $y = 1.5x$ B) $y = x + 1.5$ C) $x = 1.5y$ D) $y = 2.5x$
- 12) Which ordered pair is a solution to the equation $y = 3x + 4$?
A) (0, 0) B) (5, 3) C) (2, 10) D) (15, 39)

Unit 4 Mastery Score:

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Math Whiz Unit 5 Mastery

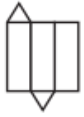
Area & Volume

Name: _____

Class Period: 1 2 3 4 Date: _____

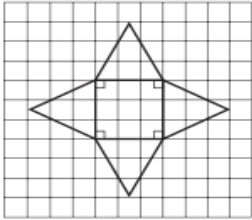
Nets and Surface Area

1) Which figure can be made from the net below?



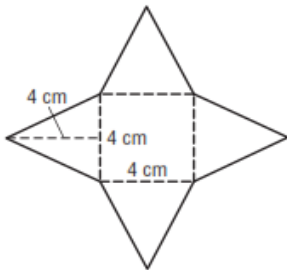
- A) triangular pyramid B) rectangular pyramid
C) triangular prism D) rectangular prism

2) What solid figure will the net shown make?



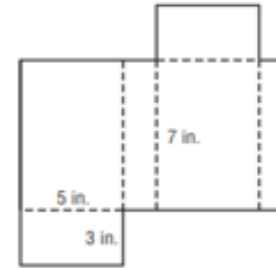
- A) a cylinder B) a square pyramid
C) a triangular prism D) a right rectangular prism

3) What is the surface area of the solid figure that the net below will form?



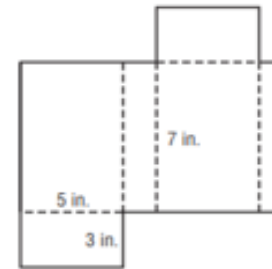
- A) 48 sq. cm B) 64 sq. cm C) 96 sq. cm D) 112 sq. cm

4) Which solid figure with the net shown form when folded?



- A) triangular pyramid B) rectangular pyramid
C) triangular prism D) rectangular prism

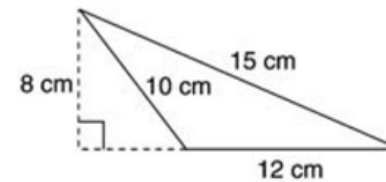
5) What is the surface area of the solid figure that the net will form?



- A) 120 in. B) 1124 in. C) 142 in² D) 142 in³

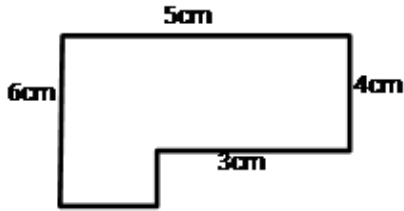
Area

6) Using the formula $A = \frac{1}{2}bh$, find the area.



- A) 48 cm² B) 60 cm² C) 96 cm² D) 120 cm²

7) What is the area of the composite figure?



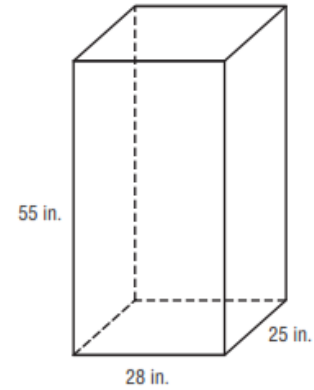
- A) 20 cm^2 B) 24 cm^2 C) 42 cm^2 D) 60 cm^2

Volume

8) What is the volume of a tank that is $1 \frac{1}{2}$ inches tall, 8 inches wide and $\frac{1}{4}$ inches long? ($V=lwh$)

- A) 3 cubic inches B) 4 cubic inches
C) $5 \frac{1}{4}$ cubic inches D) $9 \frac{3}{4}$ cubic inches

9) What is the volume of the box shown below?



- A) $37,000 \text{ in}^3$ B) $37,500 \text{ in}^3$ C) $38,000 \text{ in}^3$ D) $38,500 \text{ in}^3$

Unit 5 Mastery Score:

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Math Whiz Unit 6 Mastery

Statistics

Name: _____

Class Period: 1 2 3 4

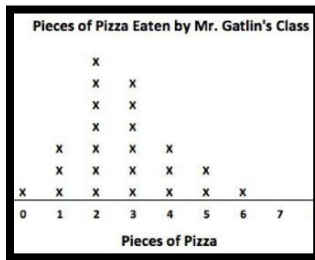
Date: _____

Statistical Questions

- 1) Which question is a statistics questions that anticipates variability?
 - A) How do I rate the taste of ice cream on a scale of 1-10?
 - B) How does my brother rate the taste of ice cream on a scale of 1-10?
 - C) Does my father or my mother like ice cream from the grocery store better?
 - D) Which brand of ice cream is preferred by the people shopping at the grocery store?

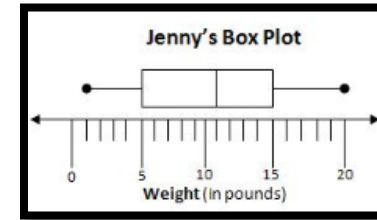
Interpreting and Analyzing Graphs

Use the dot plot to answer questions 2-8.



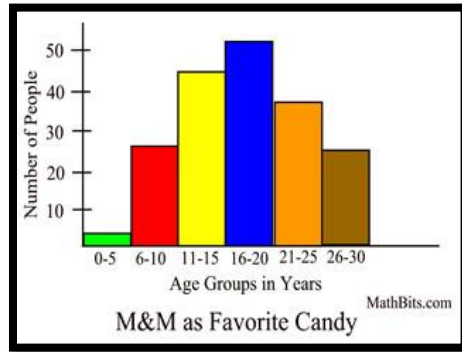
- 2) How many more students ate 3 pieces of pizza than ate 5 pieces of pizza?
 - A) 2
 - B) 3
 - C) 4
 - D) 5
- 3) What is the range? _____
- 4) What is the mode? _____
- 5) What is the median? _____
- 6) How many students ate at least 4 pieces of pizza? _____
- 7) How many people were included in the survey? _____
- 8) What is the shape of the data?
 - A) skewed left
 - B) skewed right
 - C) symmetrical

Use the box plot to answer questions 9-12.



- 9) Jenny recorded the weight of 5 dogs. Each dog weighed a different amount. She recorded the results on a box plot. Which conclusion can be made about the interquartile range?
 - A) All the dogs weighed 15 pounds or less.
 - B) All the dogs weighed between 5 and 15 pounds.
 - C) The middle 50% of the dogs weighed between 5 and 15 pounds.
 - D) The interquartile range was higher than it should be because of the dog that weighed 20 pounds.
- 10) What percent of Jenny's data was less than 15? _____
- 11) What is the IQR? _____
- 12) What is the shape of the data?
 - A) skewed left
 - B) skewed right
 - C) symmetrical

Use the histogram to answer questions 13-14.



13) How many people were younger than 11?

- A) 1 B) 5 C) 20 D) 30

14) What is the shape of the data?

- A) skewed left B) skewed right C) symmetrical

Interpreting and Analyzing Data

15) Find the mean and median of the data.

35, 40, 37, 36, 42, 42, 34

- A) mean: 38, median: 37
 B) mean: 38, median: 42
 C) mean: 37, median: 38
 D) mean: 42, median: 37

16) Find a set of 5 items that has a range of 9, a mean of 15, a median of 14 and a mode of 11.

- A) 11, 11, 13, 15, 20 B) 5, 11, 14, 14, 31
 C) 11, 11, 14, 19, 20 D) 6, 10, 14, 15, 15

17) What is the IQR of Fred's test scores?

Test scores: 83, 74, 91, 94, 70, 81, 82

- A) 2 B) 17 C) 24 D) 82

Relationship Between Independent & Dependent Variables

18) The table below shows song downloads and total cost.

Songs (x)	3	5	8	10
Total Cost (y)	\$4.50	\$7.50	\$12.00	\$15.00

Which equation represents the relationship between the total cost (y) and songs downloaded (x)?

- A) $y = 1.5x$ B) $y = x + 1.5$ C) $x = 1.5y$ D) $y = 2.5x$

19) Which ordered pair is a solution to the equation $y = 3x + 4$?

- A) (0, 0) B) (5, 3) C) (2, 10) D) (15, 39)

Unit 6 Mastery Score:

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Math Whiz Unit 7 Mastery

Rational Explorations

Name: _____

Class Period: 1 2 3 4 Date: _____

Ratios, Rates, & Unit Rates

1) What is the opposite of 6?

- A) -6 B) $-\frac{1}{6}$ C) 6 D) $\frac{1}{6}$

2) The highest temperature ever recorded in Death Valley was 121° , while the lowest ever recorded there was 13° below zero. Which integers represent these temperatures?

- A) 121 & 13 B) 1-21 & 13 C) 121 & -13 D) -121 & -13

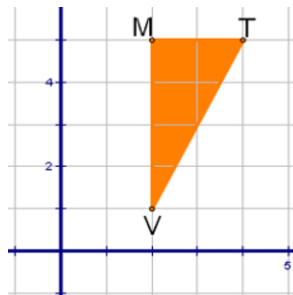
3) Determine which of these illustrates two quantities that combine to make zero.

- A) Lee lost 10 pounds, then he gained 6 pounds.
B) Ike earned more money than he spent.
C) It is 20° F and then rises to 10° .
D) Ava earned \$10 and then spent \$10.

4) What is the opposite of the opposite of -12?

- A) -12 B) 0 C) 12 D) $\frac{1}{12}$ per sec

5) If this triangle is reflected across the y-axis, what are the resulting coordinates of M'?



- A) (-2, 5) B) (-5, 2) C) (5, -2) D) (-2, -5)

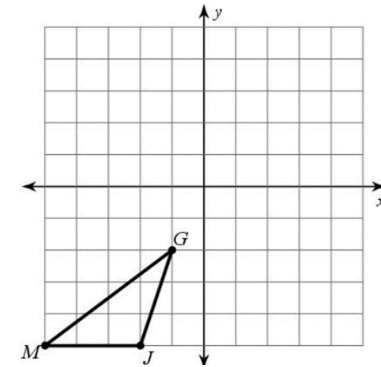
6) In which quadrant is (-4, 6)

- A) I B) II C) III D) IV

7) Which point is located in quadrant III?

- A) (4, -2) B) (-2, 2) C) (0, -9) D) (-5, 3)

8) If this triangle is reflected across the x-axis, what are the coordinates of the reflected points?



- A) G' (1, -2); J' (-2, 5); M' (5, -5)
B) G' (-1, 2); J' (-2, 5); M' (-5, 5)
C) G' (-1, -2); J' (-2, -5); M' (-5, -5)
D) G' (2, 1); J' (-5, -2); M' (-4, 2)

9) Which set of integers is ordered least to greatest?

- A) -20, -5, 10, 15, 40 B) -5, -20, 10, 15, 40
C) -5, 10, 15, -20, 40 D) 40, 15, 10, -5, -20

10) Which statement is incorrect?

- A) $-9 > -10$ B) 400 C) 480 D) 720

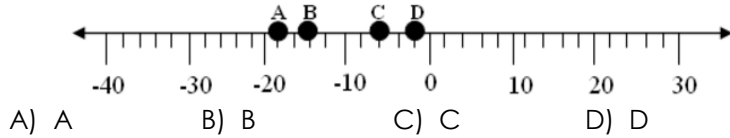
11) What is the absolute value of -6?

- A) -6 B) $-\frac{1}{6}$ C) 6 D) $\frac{1}{6}$

12) Evaluate $|6|$.

- A) -6 B) $-\frac{1}{6}$ C) 6 D) $\frac{1}{6}$

13) Which point is located at -14?



14) Sea level is located at 0 feet. Which statement is correct about the depths of the submarines?

Depth of Submarines

Submarine	Depth
Yellow Jacket	-75 feet
Bumblebee	-52 feet
Honeybee	-80 feet
Hornet	-65 feet

- A) Honeybee is closer to sea level than Hornet.
- B) Honeybee is closer to sea level than Bumblebee.
- C) Bumblebee is closer to sea level than Honeybee.
- D) Yellow Jacket is a greater distance from sea level than Honeybee.

15) Rectangle ABCD has the coordinates shown. What must be the coordinates of Point D?

A (1, 1)
B (1, 3)
C (4, 3)

- A) (5, 1)
- B) (4, 2)
- C) (3, 1)
- D) (4, 1)

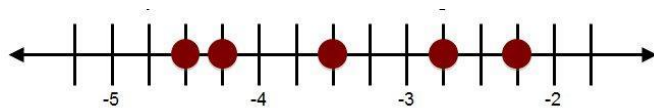
16) What is the distance between (-6, 7) and (-6, -2)?

- A) 5 units
- B) 9 units
- C) 12 units
- D) 14 units

17) What is the distance between (5, 4) and (8, 4)?

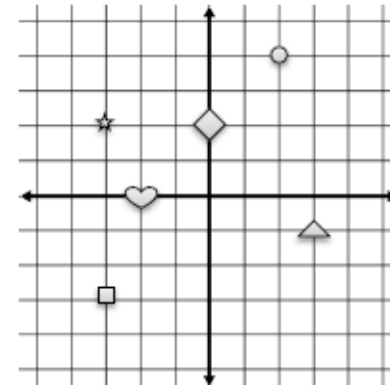
- A) 0 units
- B) 2 units
- C) 3 units
- D) 8 units

18) What is the value of Point C?



- A) 3.5
- B) 4.5
- C) -3.5
- D) -4.5

19) How many units is the star from the square?



- A) 3 units
- B) 4 units
- C) 5 units
- D) 6 units

20) Which is ordered from greatest to least?

- A) 0, 4, 18, -5, -3
- B) 4, 18, 0, -3, -5
- C) 18, 4, 0, -5, -3
- D) 18, 4, 0, -3, -5

Unit 7 Mastery Score:

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