Name _____ Date _____ Class _____

Placement Test

1. Between which two integers does the value of $\sqrt{88}$ lie?

   A 1 and 2 C 9 and 10

   B 8 and 9 D 87 and 89

2. The lengths in centimeters of four line segments are shown below.

   $$3.12,\ 3.24,\ 3\frac{1}{4},\ \sqrt{10}$$

   Which list shows the lengths in order from **least** to **greatest**?

   A $3.12,\ 3\frac{1}{4},\ 3.24, \sqrt{10}$

   B $3.12,\ \sqrt{10},\ 3.24,\ 3\frac{1}{4}$

   C $\sqrt{10}\ ,\ 3.12,\ 3.24,\ 3\frac{1}{4}$

   D $3.12,\ 3.24,\ 3\frac{1}{4},\ \sqrt{10}$

3. James wrote the number 8,980,000 in scientific notation. Which number did he write?

   A 8.98×10^{-6} C 89.8×10^{5}

   B 8.98×10^{-5} D 8.98×10^{6}

4. Erica wrote the number 3.24×10^{-3} in standard form. Which number did she write?

   A 0.00324 C 0.324

   B 0.0324 D 3240

5. What is the slope of the line described by the data in the table below?

x	−1	1	3	5
y	3	8	13	18

   A $\frac{2}{5}$ C $\frac{5}{4}$

   B $\frac{2}{3}$ D $\frac{5}{2}$

6. Which of the following equations represents a proportional relationship?

   A $y = 3x$ C $y = \frac{3}{x}$

   B $y = \frac{1}{2}x + 1$ D $y = x + \frac{1}{2}$

7. The points $A(0, 0)$, $B(2, 2)$, $C(3, 3)$, and $D(5, 5)$ all lie on the line $y = x$. Ana calculated the slopes of $\overline{AB}$ and $\overline{CD}$. What can she conclude?

   A The slopes are the same.

   B The slope of $\overline{AB}$ is greater than the slope of $\overline{CD}$.

   C The slope of $\overline{CD}$ is greater than the slope of $\overline{AB}$.

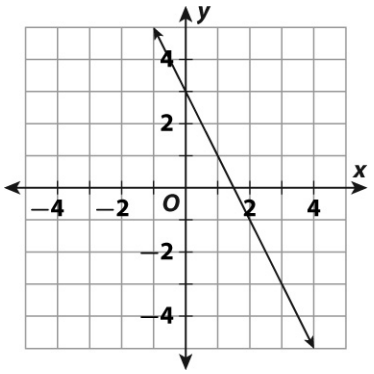
   D The slopes of $\overline{AB}$ and $\overline{CD}$ are negative.

8. Annabelle's total pay varies directly with the number of hours she works. If she works 4 hours, she earns $100. How much does Annabelle earn if she works 6 hours?

   A $90 C $150

   B $120 D $300

9. Which of the following is the equation of the line graphed below?



   A $y = -2x + 3$ C $y = -3x + 3$

   B $y = -2x + 5$ D $y = -3x + 2$

Name _____ Date _____ Class _____

Placement Test

10. Which equation shows the relationship in the table below?

x	5	8	9	11
y	10	16	18	22

A $y = 2x$ C $y = 2x + 1$

B $y = 3x$ D $y = 3x + 3$

11. Which of the following tables represents a function?

A

x	1	1	4	5
y	2	5	2	6

B

x	1	–1	4	5
y	2	3	4	–3

C

x	0	1	2	2
y	2	3	3	4

D

x	0	1	2	1
y	–1	0	1	3

12. Which of the following sets of ordered pairs does **not** represent a function?

A {(1, 2), (2, 3), (4, 5), (3, 3)}

B {(–1, 3), (2, 3), (6, 5), (7, 3)}

C {(1, 2), (1, 3), (–4, 5), (3, 8)}

D {(–1, 2), (2, 2), (4, 2), (3, 2)}

13. Tonya and Carmen are traveling at the same speed. Tonya drives 4 hours. Carmen drives another half hour and goes 15 more miles.

Which equation can be solved to find how fast the cars are going?

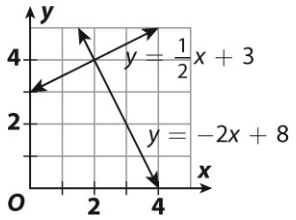
A $4x + 15 = 4.5x$

B $4x + 15 = 3.5x$

C $2.5x + 15 = 4x$

D $4.5x + 15 = 4x$

14. What is the solution of the system of equations graphed below?



A (–1, 1) C (2, 2)

B (2, 4) D (0, 3)

15. What is the solution to the system of equations shown below?

$$\begin{cases} y = -\frac{1}{2}x - 6 \\ 2y - 3x = -8 \end{cases}$$

A (–1, –5.5) C (0, 3)

B (–1, 5.5) D (0, 8)

16. Ben's Bikes charges $15.50 per hour to rent a bicycle and helmet. Cathie's Bike Shop charges $9.25 per hour for the bike and a flat fee of $12.50 for the helmet rental. For what number of hours are the total charges at both shops the same?

A 1 h C 3 h

B 2 h D 4 h

17. The vertices of a triangle are located at the points $A(1, 1)$, $B(2, -3)$, and $C(5, 0)$. The triangle is translated 4 units down, then reflected across the x-axis to obtain triangle $A'B'C'$. What are the coordinates of the vertices of triangle $A'B'C'$?

A $A'(-1, 3)$, $B'(-2, 7)$, $C'(-5, 4)$

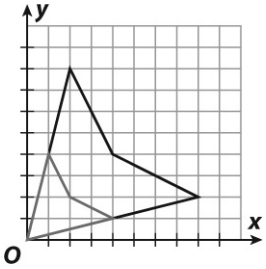
B $A'(-1, -3)$, $B'(-2, -7)$, $C'(-5, -4)$

C $A'(1, -3)$, $B'(2, -7)$, $C'(5, -4)$

D $A'(1, 3)$, $B'(2, 7)$, $C'(5, 4)$

Placement Test

18. The gray figure is the image of the black figure after a dilation.



Which represents the dilation?

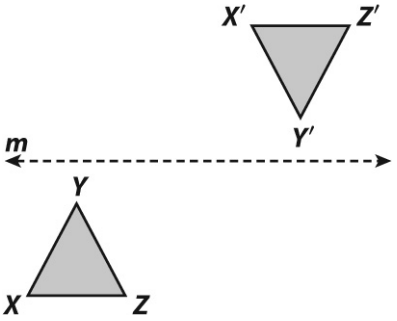
A $(x, y) \rightarrow \left(\frac{1}{4}x, \frac{1}{4}y\right)$

B $(x, y) \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$

C $(x, y) \rightarrow (2x, 2y)$

D $(x, y) \rightarrow (4x, 4y)$

19. Jerlyn applied a sequence of transformations to obtain triangle $X'Y'Z'$ from triangle XYZ as shown below.



Which of the following describes the sequence of transformations?

A a translation followed by a reflection across line *m*

B a translation followed by a 180° counterclockwise rotation

C dilation with a scale factor of 2

D a reflection across line *m* followed by a 180° rotation

20. Daria applied a transformation to triangle *ABC* to obtain triangle $A'B'C'$. The two triangles are **not** congruent. Which of the following could be the transformation Daria applied?

A translation

B rotation

C dilation

D reflection