Sample DeltaMath Assignment
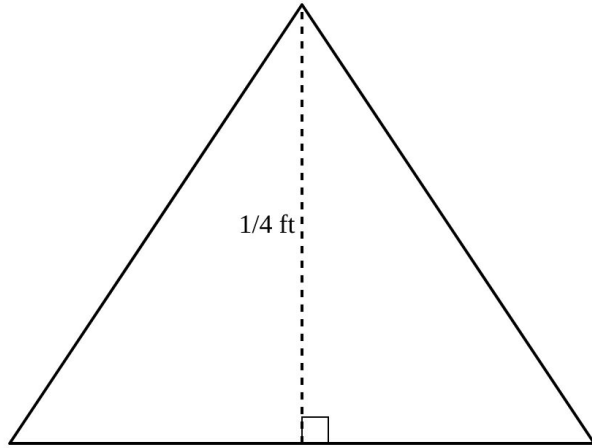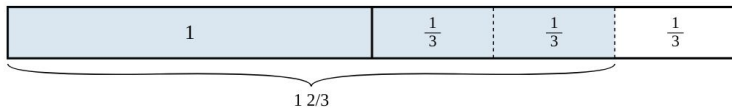
Name: _____ Date: _____

Directions:

Show all work!

1. The area of the triangle below is $\frac{1}{24}$ square feet. What is the length of the base? Express your answer as a fraction in simplest form.

1/4 ft

$$b = \frac{1}{3} \text{ ft}$$

2. Convert $1\frac{2}{3}$ into an improper fraction.

1	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$

1 2/3

$$\boxed{\frac{5}{3}}$$

3. Evaluate the expression shown below and write your answer **as a fraction** in simplest form.

$$\frac{\frac{1}{5}}{\frac{7}{3} - \frac{5}{3}}$$

$$\boxed{\frac{3}{10}}$$

4. Solve for a.

$$52 = -\frac{a}{11} + 48$$

$$\boxed{a = -44}$$

5. Guadalupe practices the piano the same number of minutes each day. The relationship between the number of days, x, and the total number of minutes she practices, y, is represented by a graph drawn in the xy-plane.

If the point $(7, 175)$ lies on the graph, what does the ordered pair $(7, 175)$ indicate?

A. Guadalupe practices a total of 7 minutes over 175 days

B. Guadalupe practices 7 minutes a day for 175 days

C. Guadalupe practices a total of 175 minutes over 7 days

D. Guadalupe practices 175 minutes a day for 7 days

6. Solve for y.

$$-6.24 = -2.1 - 2.3y$$

$$\boxed{y = 1.8}$$

7. Solve for b.

$$53 = 3 + \frac{5}{9}b$$

$$\boxed{b = 90}$$

8. Solve for x. Express your answer as a proper or improper fraction in simplest terms.

$$-\frac{2}{3} = -\frac{4}{5}x - \frac{1}{4}$$

$$\boxed{\frac{25}{48} = x}$$

9. Solve for x in simplest form.

$$7 = \frac{4}{3}(x + 6)$$

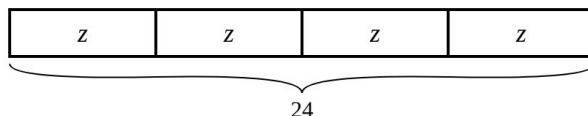$$\boxed{x = -\frac{3}{4}}$$

10. Solve. $2(2z - 3) = 18$

$$\boxed{6}$$

11. Solve for x.

$$-5(-5x + 3) - 5x + 5 = -50$$

$$\boxed{-2}$$

12. Find the value of z in the diagram below.

z	z	z	z

24

$$\boxed{z = 6}$$

13. Which of the following equations corresponds to the diagram below?

z	z	15

35
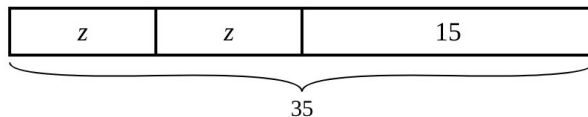
A. $35 + 15 = 2z$ B. $35 \div 15 = z$

C. $35 + 2 = 15z$ $\boxed{\text{D. } 35 = 2z + 15}$

                   ANSWER KEY

14. Which inequality is true when the value of h is -4?

A. $\boxed{-h - 6 \le 9}$ B. $-h - 6 \le -9$

C. $-h - 6 \ge 9$ D. $h - 6 \ge -9$

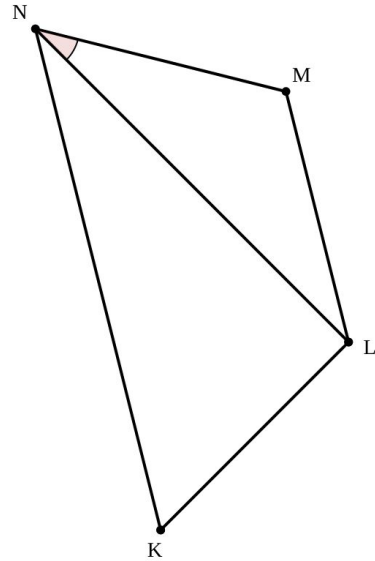**15.** Which inequality is true when the value of t is -18?

A. $t + 4.5 > -7$ B. $-t + 4.5 < -7$

C. $-t + 4.5 < 7$ D. $\boxed{-t + 4.5 > 7}$
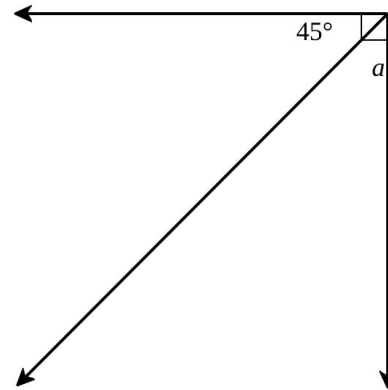
16. Name the figure below in two different ways.

$\boxed{\overleftrightarrow{XI} \text{ and } \overleftrightarrow{IX}}$

17. Name the marked angle in 2 different ways.

$\boxed{\text{Solution: } \angle\text{LNM and } \angle\text{MNL.}}$

18. Find the measure of the missing angle.

$\boxed{a = 45°}$

19. Express in simplest radical form: $\sqrt{54}$

$\boxed{3\sqrt{6}}$

20. Solve for d. Express your answer as an integer or integers or in simplest radical form.

$$d = (\sqrt[3]{54})^3$$

$$\boxed{d = 54}$$

21. Members of a soccer team raised $1416.50 to go to a tournament. They rented a bus for $877.50 and budgeted $24.50 per player for meals. Determine the number of players the team can bring to the tournament.

$$\boxed{\text{The team can bring 22 players to the tournament.}}$$

22.

Austin needs to order some new supplies for the restaurant where he works. The restaurant needs at least 362 knives. There are currently 207 knives. If each set on sale contains 18 knives, which inequality can be used to determine x, the minimum number of sets of knives Austin should buy?

A. $362 \geq 18(207 + x)$

B. $362 \geq 18x + 207$

$$\boxed{\text{C.}\ \ 362 \leq 18x + 207}$$

D. $362 \leq 18(207 + x)$

23. Find the x-intercept of each line defined below and compare their values.

$$\underline{\text{Equation of Line A:}}$$

$$y = -\frac{1}{2}x + 1$$

$$\underline{\text{Select values from Line B:}}$$

x	y
-12	-1
-6	0
0	1

The x-intercept of Line A is 2 and the x-intercept of Line B is -6. Therefore the x-intercept of Line A is <u>greater than</u> the x-intercept of Line B.

24. Which set of ordered pairs does *not* represent a function?

A. $\{(-4, 9), (-9, 3), (1, 7), (-6, 6)\}$

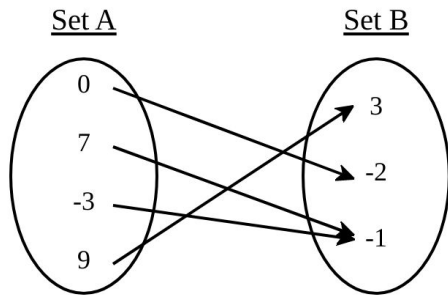B. $\{(-9, 5), (3, 5), (0, 1), (-6, 8)\}$

$$\boxed{\text{C.}\ \ \{(8, -1), (4, -4), (4, -3), (9, 5)\}}$$

D. $\{(-2, -2), (-1, 0), (0, -5), (-9, -5)\}$

25. Fill in the blanks below in order to justify whether or not the mapping shown represents a function.

Set A   Set B

0

7

-3

9

3

-2

-1

The mapping diagram above <u>represents</u> a function since <u>for</u> <u>each number</u> in <u>Set A (the input)</u> where there <u>is only one</u> <u>mapping</u> <u>to Set B (the output)</u>.
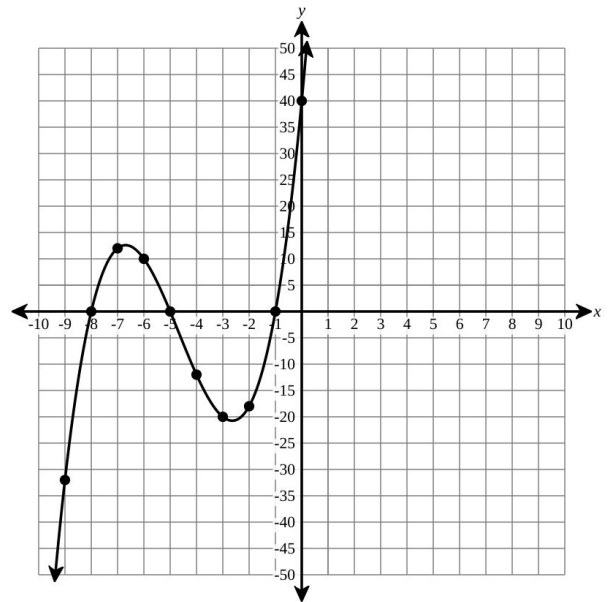
27. Solve the following equation for a.

$$na = f^2 - Da$$

$$\boxed{a = \frac{\mathbf{f^2}}{\mathbf{n + D}}}$$

28. The function $y = f(x)$ is graphed below. What is the average rate of change of the function $f(x)$ on the interval $-3 \le x \le -1$?

$$\boxed{10}$$

26. Solve the following equation for a.

$$\frac{n}{R} = \frac{b}{a}$$

$$\boxed{\frac{\mathbf{bR}}{\mathbf{n}} = a}$$

29. A function is graphed below. On which interval of x is the average rate of change of the function the *smallest*?

x	y
10	56
27	128
45	173
80	252
111	288

A. $x = 10$ to $x = 27$

B. $x = 27$ to $x = 45$

C. $x = 45$ to $x = 80$

D. $x = 80$ to $x = 111$

30. What is the intermediate step in the form $(x + a)^2 = b$ as a result of completing the square for the following equation?

$$x^2 + 2x = 319$$

$$(x + 1)^2 = 320$$

31. Determine whether the quadratic function shown below has a minimum or maximum, then determine the minimum or maximum value of the function.

$$f(x) = x^2 + 5x + 4$$

The minimum value is $-2.25.$

32. Solve the following system of equations algebraically. If there are infinite solutions state "infinite solutions" and if there are no solutions state "no solutions."

$$y = x^2 + 6x + 10$$

$$y = -2x - 5$$

$(-3, 1)$ and $(-5, 5)$

33. Write an explicit formula for a_n, the nth term of the sequence $2, 8, 32, ...$

$$a_n = 2(4)^{n-1}$$

34. What is a formula for the nth term of the given sequence?

$$18, 25, 32...$$

A. $a_n = 25 - 7n$ B. $a_n = 7n + 11$

C. $a_n = 18 + 7n$ D. $a_n = 18(7)^{n-1}$

35. In a geometric sequence, the first term, a_1, is equal to 3, and the third term, a_3, is equal to $108.$ Which number represents the common ratio of the geometric sequence?

A. $r = 6$ B. $r = 7$ C. $r = 8$ D. $r = 9$

ANSWER KEY

Name: _____ **Date:** _____

36. The first three terms of a sequence are given. Round to the nearest *thousandth* (if necessary).

$$8, 20, 50, ...$$
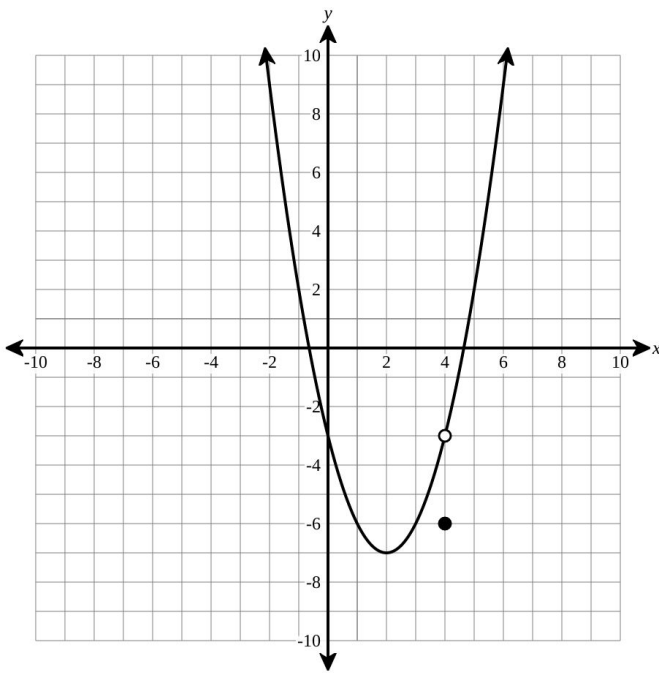
$$\text{Find the 6th term.}$$

$$\boxed{781.25}$$

37. Determine if the sequence below is arithmetic or geometric and determine the common difference / ratio in simplest form.

$$5, 15, 45, ...$$

This is <u>a geometric</u> sequence and the <u>common ratio</u> is equal to <u>3</u>.

38. Evaluate the function graphically.

$$\text{Find } f(4)$$

$$\boxed{-6}$$

39. Last year at a certain high school, there were 84 boys on the honor roll and 50 girls on the honor roll. This year, the number of boys on the honor roll decreased by 25% and the number of girls on the honor roll decreased by 16%. By what percentage did the total number of students on the honor roll decrease? Round your answer *to the nearest tenth* (if necessary).

$$\boxed{21.6}$$

40. What is the value of $f(4)$?

x	$f(x)$
1	I
2	made
3	this
4	problem

A. I

B. made

C. this

D. problem

Note: this QR link will not work on this sample.

Scan the QR code or visit deltamath.com/qr/3F3SF-273G3 to view full solutions.