

**Integrated Math 1 Final Exam Review**

Name KEY Date \_\_\_\_\_ Class \_\_\_\_\_

1. The frequency table below shows the ages of the employees at Marianna's Auto Shop. Marianna has 56 male employees and 34 female employees.  
a. Fill in the frequency table.

Age	Gender		
	Male	Female	
18-27	10	5	15
28-37	16	2	18
38-47	18	10	28
48-57	12	17	29
<b>Total</b>	<b>56</b>	<b>34</b>	<b>90</b>

b. How many 38-47 year olds work at the auto shop?  
28

c. Does Marianna employ more 18-27 year olds or 48-57 year olds? How many more?  
14

2. Marion surveyed 55 girls and 25 boys and asked about their preferred sport. In all, 22 girls preferred soccer, and 7 boys preferred soccer. What is the conditional relative frequency that a student's favorite sport is not soccer given that the student is a boy?

$$\frac{18}{25} = .72 = 72\%$$

3. For the set  $\{-30, -25, -9, 10, 15, 30\}$ , would each measure be affected if the value of 4 were included?

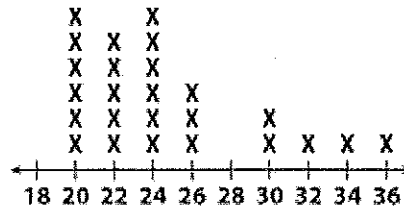
- A mode             Yes     No
- B median         Yes     No
- C mean           Yes     No
- D range          Yes     No

4. What is the mean and standard deviation of the data set  $\{42, 65, 85, 85, 89, 90\}$ ?

- A mean: 61; standard deviation: 15.3
- B mean: 76; standard deviation: 17.3
- C mean: 85; standard deviation: 15.3
- D mean: 85.5; standard deviation: 17.3

5. Which statement best describes the dot plot shown below?

- A skewed left             C skewed right
- B symmetric              D bimodal



6. Which of the following correlation coefficients indicates a weak linear correlation?

- A -0.98                    C 0
- B -0.61                    D 0.89

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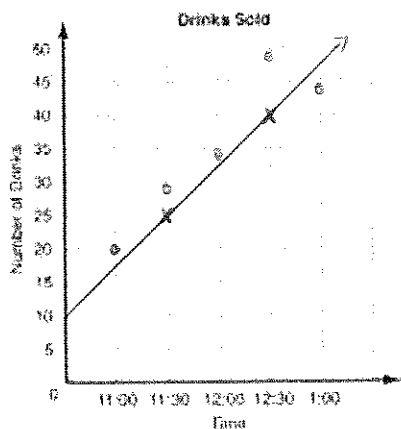
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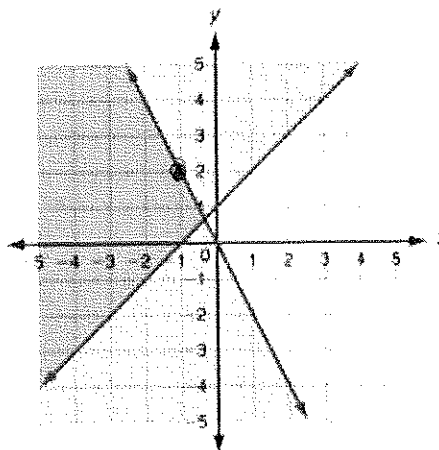
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7. The table shows the number of juice drinks sold at a small restaurant from 11:00 am to 1:00 pm. Graph a scatter plot and trend line using the given data.

Time	11:00	11:30	12:00	12:30	1:00
Number of Drinks	20	29	34	49	44

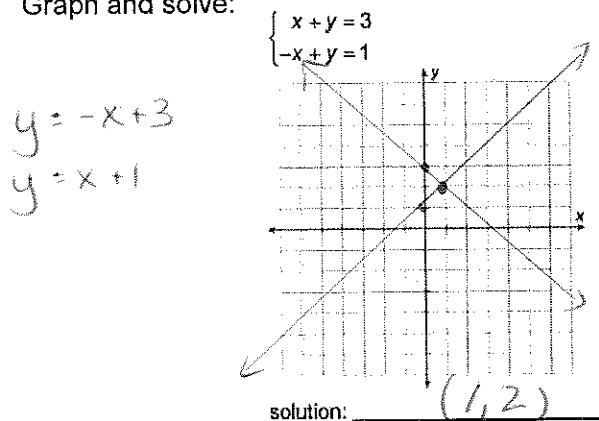


11. Is  $(-1, 2)$  a solution to the system? Explain your answer.



Yes, a solid line indicates points that are included in the solution set.

8. Graph and solve:



12. A small art museum charges \$5 for an adult ticket and \$3 for a student ticket. At the end of the day, the museum had sold 89 tickets and made \$371. How many student tickets and how many adult tickets were sold?

Equations: 
$$\begin{aligned} 5x + 3y &= 371 \\ x + y &= 89 \end{aligned}$$

52 adult tickets  
37 student tickets

9. How many solutions does this system have?

$$\begin{cases} 24x = 3y - 7 \\ 8x - \frac{1}{3}y = -\frac{7}{3} \end{cases}$$

- A none      B exactly 2  
 C exactly one      D infinitely many

13. Solve the system  $\begin{cases} y = 6x - 3 \\ y = 8x + 9 \end{cases}$  by substitution. What is the solution?

$$(-6, -39)$$

10. What is the solution to the system

$$\begin{cases} 8y = 2x + 25 \\ y = -18x + 3 \end{cases} ?$$

$$\left(-\frac{1}{146}, \frac{228}{73}\right)$$
  
 -or-
   

$$(-0.007, 3.12)$$

14. Write a recursive rule and explicit rule for the geometric sequence 27, -9, 3, -1, ...

Recursive rule:  $f(n) = 27, f(n) = f(n-1) \cdot \frac{-1}{3}, n \geq 2$

Explicit rule:  $f(n) = 27 \cdot \left(\frac{-1}{3}\right)^{n-1}$

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15. What is the tenth term of the geometric sequence  $\frac{1}{25}, \frac{1}{5}, 1, 5 \dots$ ?

78,125

19. Solve  $36^2 = 6^{x-7}$  What is the value of  $x$ ?

$x = 11$

16. What is  $f(x) = 8(2)^x$  evaluated for  $x = -5$ ?

$\frac{1}{4}$  or .25

20. A nature preserve had approximately 726 Gray Wolves in 1998. The population has been decreasing at a rate of 2% per year. Write a function that gives the population in terms of  $y$  years after 1998.

$y = 726(.98)^y$

17. Complete the table of values for the function.

$x$	$f(x) = 0.10(1.4)^x$
-2	.051
-1	.071
0	.1
1	.14
2	.196

21. Which set of ordered pairs satisfies an exponential equation?

A  $\{(0, 0), (1, 1), (2, 4), (3, 9)\}$

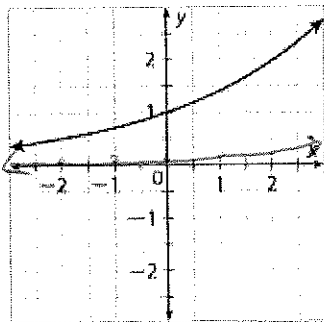
B  $\{(0, 5), (1, 8), (2, 11), (3, 14)\}$

C  $\{(0, 2), (1, 4), (2, 8), (3, 16)\}$

D  $\{(0, -2), (1, -4), (2, -6), (3, -8)\}$

18. Use the values in the table in #17.

Add the graph of the function to the graph of the parent function below.

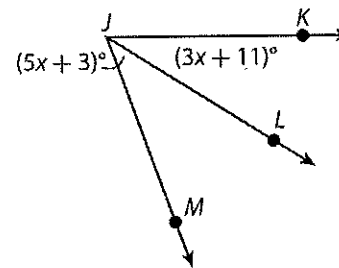


Describe the end behavior of the graph.

As  $x \rightarrow \infty, f(x) \rightarrow \infty$

As  $x \rightarrow -\infty, f(x) \rightarrow 0$

22. In the figure,  $m\angle KJL = 32^\circ$ .



What is the value of  $x$ ?

$x = 7$

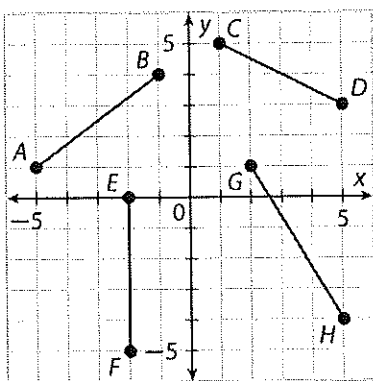
What is  $m\angle KJM$ ?

$70^\circ$

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23.



$\overline{AB}$

Which segment is congruent to  $\overline{EF}$ ?

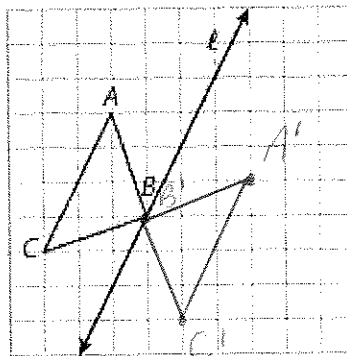
24.  $\triangle ABC$  maps to triangle  $\triangle A'B'C'$  as follows.

Preimage	Image
A(4, -3)	$\rightarrow$ A'(1, -1)
B(-1, -5)	$\rightarrow$ B'(-4, -3)
C(3, 2)	$\rightarrow$ C'(0, 4)

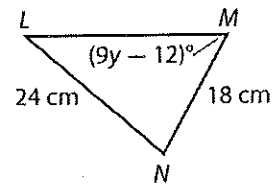
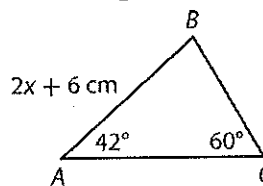
Use coordinate notation to write the rule that maps the preimage to the image.

$$(x, y) \rightarrow (x-3, y+2)$$

27. Draw the image of  $\triangle ABC$  after a reflection across line  $\ell$ .



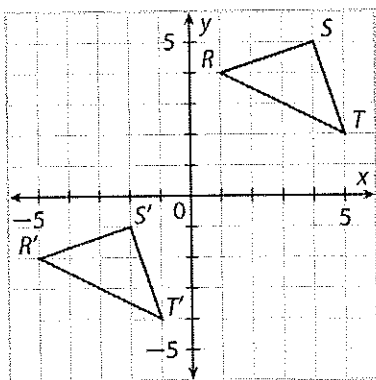
28. In the figures below,  $\triangle ABC \cong \triangle LNM$



What is the value of  $m\angle M$ ?  $60^\circ$

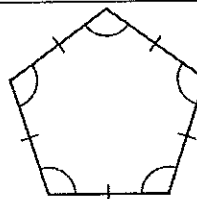
What is AB?  $24\text{cm}$

25. Specify the component form of the vector that maps  $RST$  to  $R'S'T'$ .



$\langle -6, 6 \rangle$

29.



How many lines of symmetry does the figure have?

5

What are the angles of rotation less than  $360^\circ$  for the figure?

$72^\circ, 144^\circ, 216^\circ, 288^\circ$

26. Parallelogram  $QRST$  has vertices  $Q(-5, 3)$ ,  $R(-3, 5)$ ,  $S(1, 2)$ , and  $T(-4, 0)$ . What are the coordinates of its image after a counterclockwise rotation of  $270^\circ$  about the origin?

$Q'(3, 5)$   $R'(5, 3)$   
 $S'(2, -1)$   $T'(0, 4)$

30. The measures of two complementary angles are represented by the expressions  $(2x + 39)^\circ$  and  $(8x + 21)^\circ$ . Find the value of  $x$ .

$x = 3$

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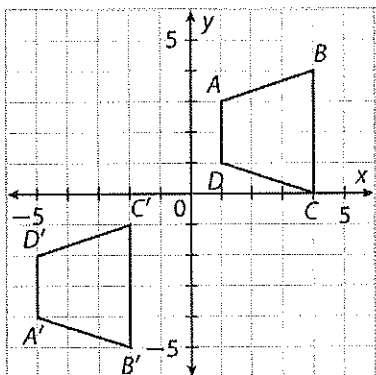
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31. What transformations can you use to show that quadrilaterals  $ABCD$  and  $A'B'C'D'$  are congruent?

- ① Reflection on x-axis
- ② Translation left 6 units down 1 unit



34. Write an equation for the line that passes through  $(2, 4)$  and is perpendicular to  $y = 3x + 6$ .

$$y = -\frac{1}{3}x + \frac{14}{3}$$

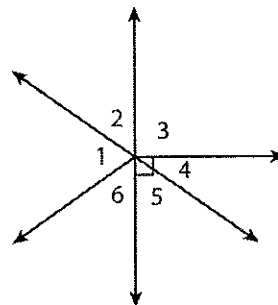
32. For the transformations in #31, Express the transformations as a single mapping rule in the form of  $(x, y) \rightarrow (?, ?)$ .

$$(x, y) \rightarrow (x, -y) \rightarrow (x-6, y-1)$$

or

$$(x, y) \rightarrow (x-6, -y-1)$$

35. In the figure, the measure of  $\angle 4$  is  $45^\circ$ .



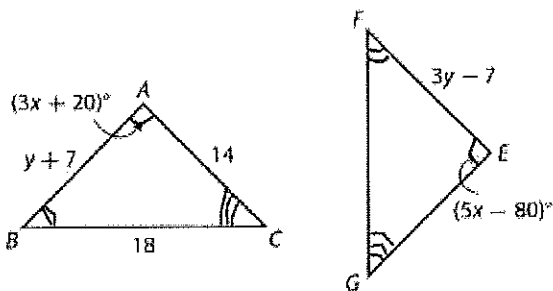
What is the measure of  $\angle 2$ ?

$$45^\circ$$

33. Write an equation for the line that passes through  $(-2, 4)$  and is parallel to  $4x + 2y = 5$ .

$$y = -2x$$

36. Use the figures below to determine the value of  $y$  that ensures that the triangles are congruent.



$$y = 7$$