Final Exam Review

Name _____ 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.

	Gender		
Age	**Male**	**Female**	
18–27		5	15
28–37			
38–47	18		28
48–57	12	17	
Total			

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

_____

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

_____

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?

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

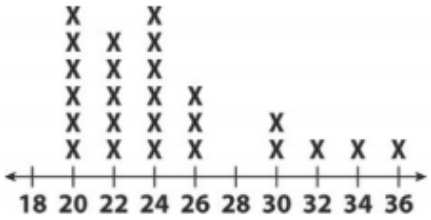
C mean: 85; standard deviation: 15.3

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

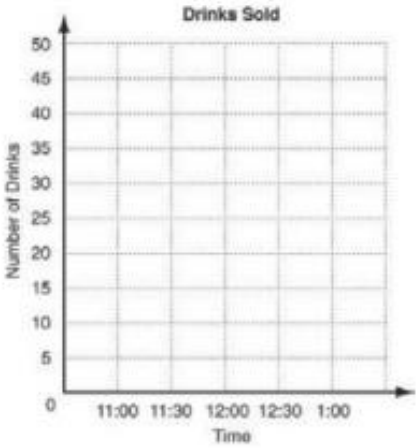
B -0.61 D 0.89

Final Exam Review

Name _____ Date _____ Class_____

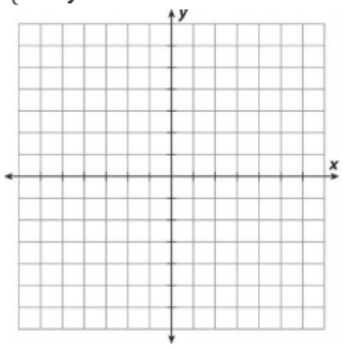
7. The table shows the number of juice drinks sold at a small restaurant from 11:00 am to 1:00 pm. Graph a scatter plot and trend line using the given data.

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



8. Graph and solve:

$\begin{cases} x+y=3 \\ -x+y=1 \end{cases}$



solution: _____

9. How many solutions does this system have?

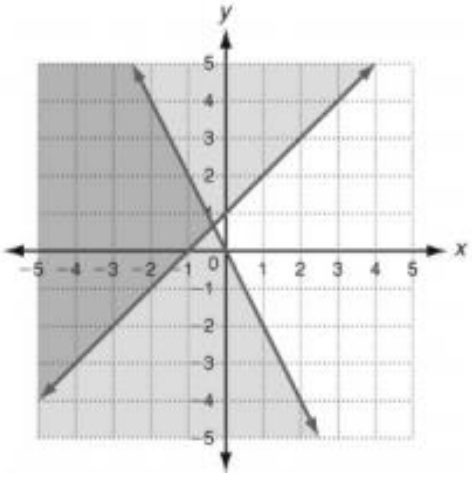
$$\begin{cases} 24x = 3y - 7 \\ 8x - \frac{1}{3}y = -\frac{7}{3} \end{cases}$$

A none B exactly 2

C exactly one D infinitely many

10. What is the solution to the system $\begin{cases} 8y = 2x + 25 \\ y = -18x + 67 \end{cases}$?

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



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:_____

_____

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

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

Recursive rule: _____

Explicit rule:_____

Final Exam Review

Name _____ Date _____ Class_____

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

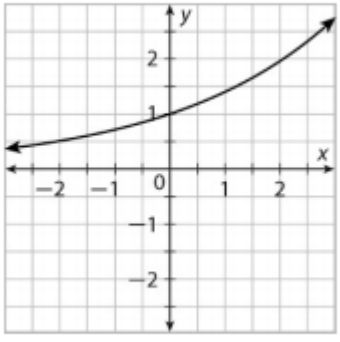
16. What is $f(x) = 8(2)^x$ evaluated for $x = -5$?

17. Complete the table of values for the function.

x	$f(x) = 0.10(1.4)^x$
–2	
–1	
0	
1	
2	

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.

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

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.

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

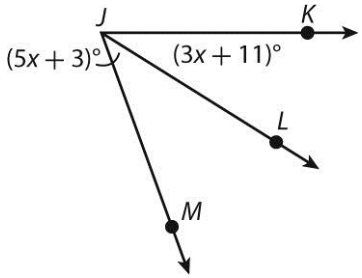
A {(0, 0),(1, 1), (2, 4), (3, 9)}

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)}

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

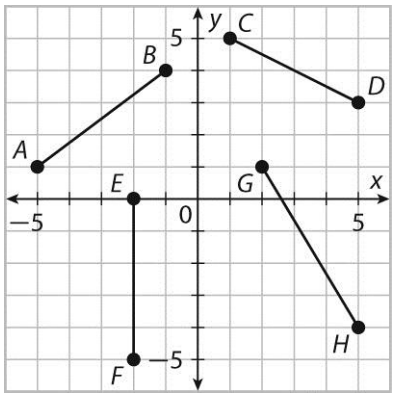


What is the value of x?

What is $m\angle KJM$?

Final Exam Review

Name _____ Date _____ Class_____

23. 

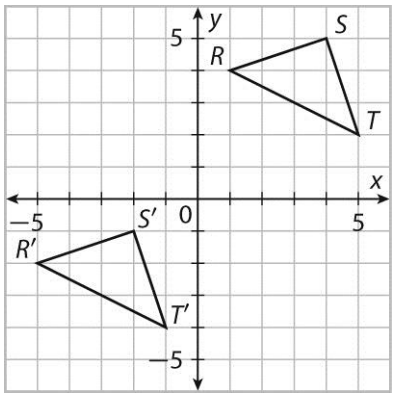
Which segment is congruent to $\overline{EF}$?

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

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

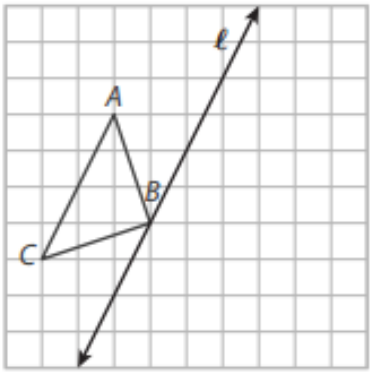
Use coordinate notation to write the rule that maps the preimage to the image.

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

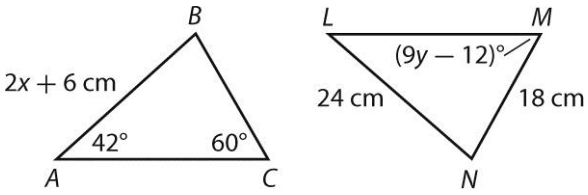


26. Parallelogram *QRST* has vertices *Q*(–5, 3), *R*(–3, 5), *S*(1, 2), and *T*(–4, 0). What are the coordinates of its image after a counterclockwise rotation of 270° about the origin?

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

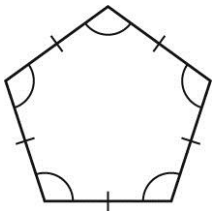


28. **In the figures below,** $\Delta ABC \cong \Delta LNM$



What is the value of m∠*M*?

What is AB?

29. 

How many lines of symmetry does the figure have?

_____

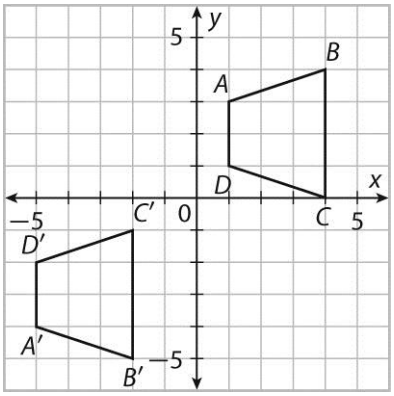
What are the angles of rotation less than 360° for the figure?

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

Final Exam Review

Name _____ Date _____ Class_____

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



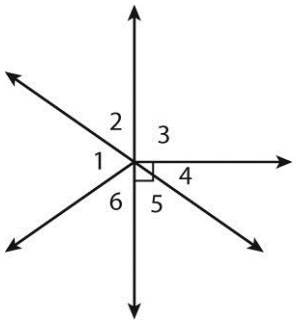
32. For the transformations in #31,

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

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

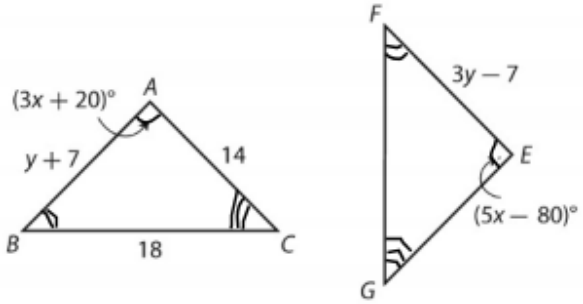
34. Write an equation for the line that passes through (2, 4) and is perpendicular to $y = 3x + 6$.

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



What is the measure of $\angle 2$?

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

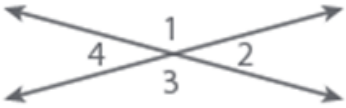


Final Exam Review

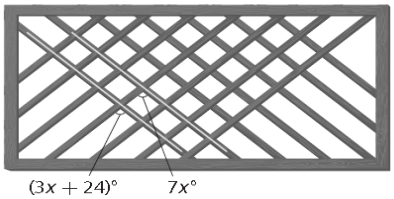
Name _____ Date _____ Class_____

37. If the m∠2 = 57º, what are the measures of the other angles?

m∠1 = _____
m∠3 = _____
m∠4 = _____

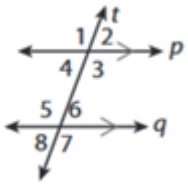


40. A trellis consists of overlapping wooden slats. What must the value of x be in order for the two slats to be parallel?

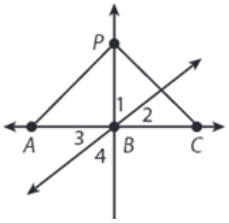


38. If the m∠2 = 62º, what are the measures of the following angles?

m∠4 = _____
m∠5 = _____
m∠8 = _____

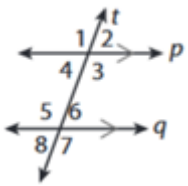


41. Given: PA =PC and BA = BC. Suppose PA = 15 cm and PB = 9 cm. What is the length of AC?

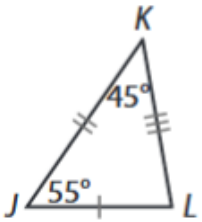


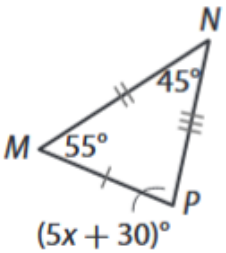
39. Match the angle pairs with the correct label for the pairs. Indicate a match by writing the letter for the angle pairs on the line in front of the corresponding labels.

A.∠4 and ∠2 _____Corresponding Angles
B.∠5 and ∠3 _____Same-Side Interior Angles
C.∠3 and ∠6 _____Alternate Interior Angles
D.∠1 and ∠5 _____Vertical Angles



42. Find the value of the variable that results in congruent triangles.

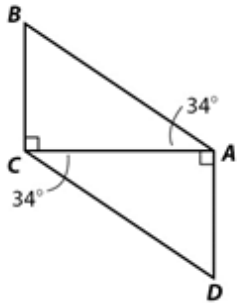




Final Exam Review

Name _____ Date _____ Class_____

43. Determine whether the triangles are congruent. Explain your reasoning.



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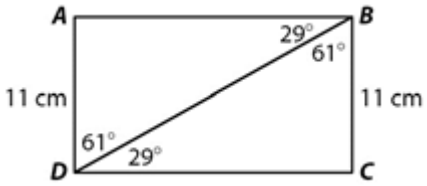
44. Determine whether the triangles are congruent. Explain your reasoning.



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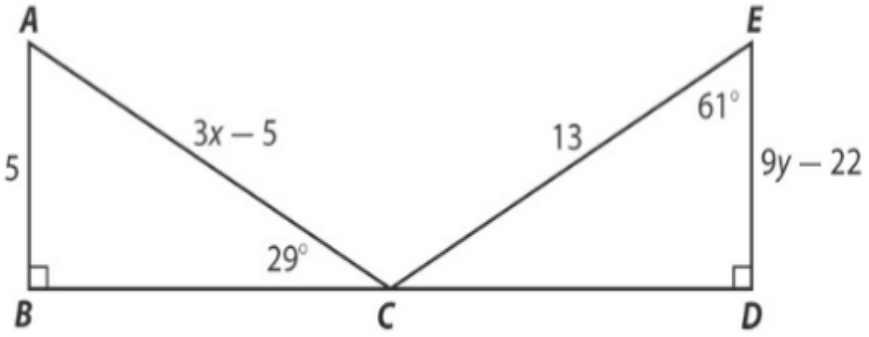
45. $\triangle ABC \cong \triangle EDC$. $BD = 24$. Find each value.



$m\angle A =$ _____ $BC =$ _____ $m\angle DCE =$ _____

$ED =$ _____ $x =$ _____ $y =$ _____