Name: _____ Date: _____

Kobrin/Losquadro Math 8

Mixed Final Review 10

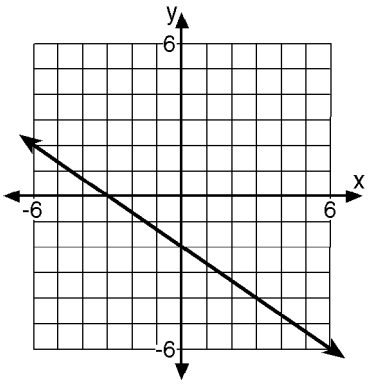
1) What is the product of $3x^4y^2$ and $2xy^3$?

A) $6x^5y^6$ B) $6x^5y^5$ C) $6x^4y^6$ D) $6x^4y^5$

2) Which one of the following expressions is equivalent to $(x^2y)^3$?

A) x^2y^3 B) x^5y^4 C) x^6y D) x^6y^3

3) What is the equation of the line graphed?



A) $y = \frac{3}{2}x - 2$ B) $y = -\frac{2}{3}x - 2$ C) $y = -\frac{3}{2}x - 2$ D) $y = \frac{2}{3}x + 2$

4) The expression $\frac{18x^3y^2}{-3x^3y}$ is equivalent to

A) $-6xy^2$ B) $6xy$ C) $-6xy$ D) $-6y$

5) The graph of which equation is a vertical line that intersects the x-axis at 7?

A) $y = 7$ B) $y = x + 7$ C) $x = 7$ D) $x = y + 7$

6) Which of the following is *not* a factor of $x^2(x - 5) - 9(x - 5)$?

A) $x + 3$ B) $x - 3$ C) $x + 5$ D) $x - 5$

7) The area of a rectangle is $28xy^7$ units^2. If the width is represented by $7y$, what expression represents the length?

A) $4y^7$ B) $4xy^6$ C) $4xy^7$ D) $4y^6$

8) What is the greatest common factor of $9xy^2 - 6xy - 3x$?

A) $3x$ B) 3 C) $2y$ D) $3y^2$

9) The y-intercept (b) of the line $y = 2x - 3$ is _____.

A) $b = -2$ B) $b = 2$ C) $b = -3$ D) $b = 3$

10) What is the slope of a line that passes through points (-4,2) and (6,8)?

A) $-\frac{3}{5}$ B) $\frac{3}{5}$ C) $-\frac{5}{3}$ D) $\frac{5}{3}$

11) What expression represents the area of a rectangle whose length is $5x + 7$ and whose width is $2x$?

A) $10x^2 + 14x$ B) $10x^2 + 14$ C) $10x^2 + 7x$ D) $10x + 14$

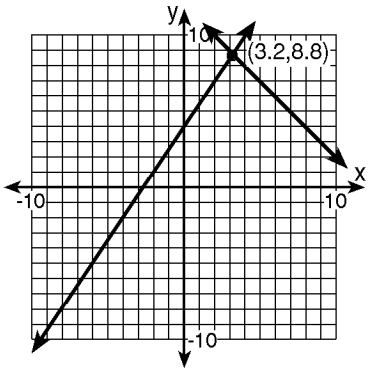
12) Factor the given polynomial completely:

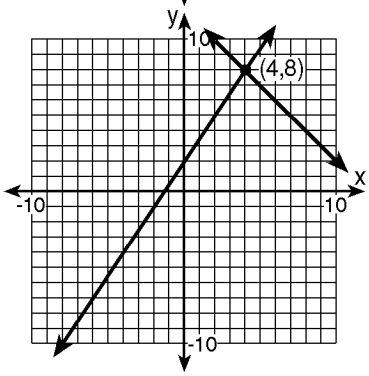
$4n^3 - 49n$

A) $n^2(2n + 7)(2n - 7)$
B) $4n(n + 7)(n - 7)$
C) $n(2n + 7)(2n - 7)$
D) $2n(n - 7)(n + 7)$

13) Which of the following ordered pairs is the solution of the system of equations below?

$3x + 2y = 4$
$-2x + 2y = 24$

A)


B)


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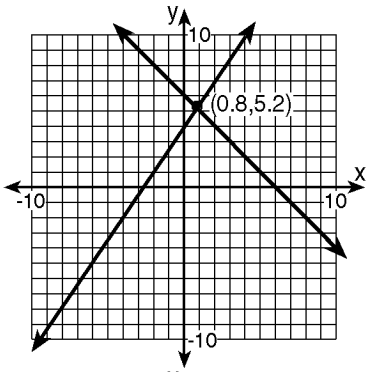

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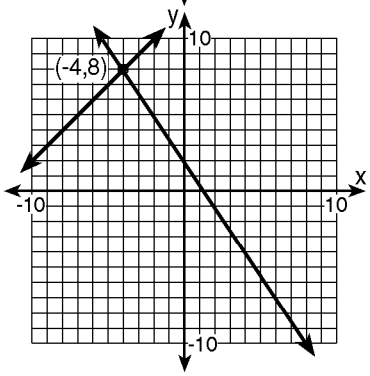


14) The steps for solving the equation $3(2x - 6) = 2(3x - 9)$ are shown below.

1. $3(2x - 6) = 2(3x - 9)$
2. $6x - 18 = 6x - 18$
3. $6x - 6x - 18 + 18 = 6x - 6x - 18 + 18$
4. $0 = 0$

What is the correct conclusion?

A) $x = 0$ is the only solution.
B) The equation is true for all values of x.
C) The solution set is the empty set.
D) $x = 18$ is the only solution.

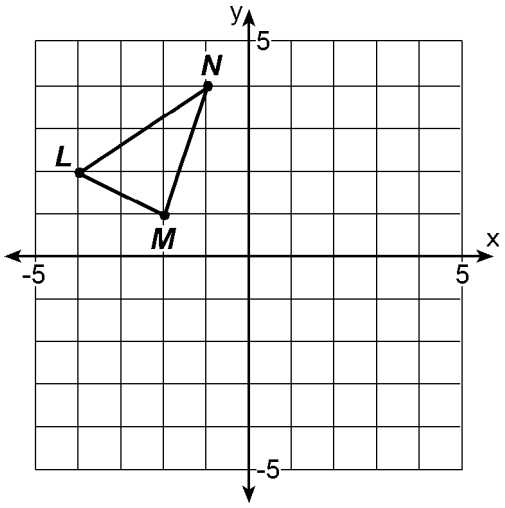
15) The expression $(x - 4)^2$ is equivalent to

A) $x^2 + 8x + 16$
B) $x^2 + 16$
C) $x^2 - 16$
D) $x^2 - 8x + 16$

16) What are the factors of $x^2 - 81y^2$?

A) $(x + 9y)(x - 9y)$
B) $(x + 81y)(x - y)$
C) $(x - 81y)(x + y)$
D) $(x - 9y)(x - 9y)$

17) If ΔLNM is reflected across the y-axis, what will be the coordinates of point L', the image of point L?



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

18) If the graph of a straight line falls from left to right, then its slope is

A) zero
B) negative
C) undefined
D) positive

19) Sandy and Taylor went to *Sliders Snack Shop* at the baseball stadium during the playoff game. Sandy bought 4 sandwiches and 3 drinks for a total of $25.80. Taylor bought 2 sandwiches and 4 drinks for a total of $17.90. If no sales tax was charged, what is a system of equations that can be used to determine the cost of a sandwich (x) and a drink (y)?

A) $4x + 3y = 25.80$
$2x + 4y = 17.90$

B) $x + y = 14.00$
$6x + 7y = 53.70$

C) $4x + 3y = 17.90$
$2x + 4y = 25.80$

D) $4x + 4y = 25.80$
$2x + 3y = 17.90$

20) Solve the equation for the given variable.

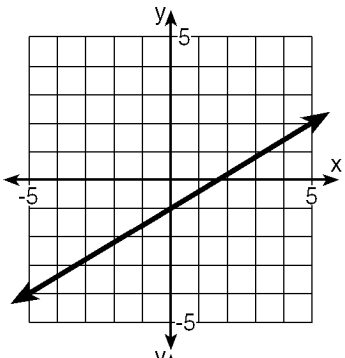
$2(4x + 6) - 3x + 2 = x + 32$

A) -5 B) 3 C) $11\frac{1}{2}$ D) $4\frac{1}{2}$

21) What is the sum of $8y - 1 - 2y^2$ and $-3y^2 + 2y + 7$?

A) $5y^2 + 10y + 6$ B) $-5y^2 + 10y + 6$ C) $-5y^2 - 6y + 6$ D) $5y^2 + 6y - 6$

22) Which of the following is the correct graphic representation of the function $f(x) = \frac{3}{5}x - 1$?

A)


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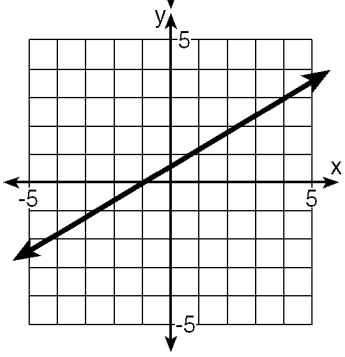
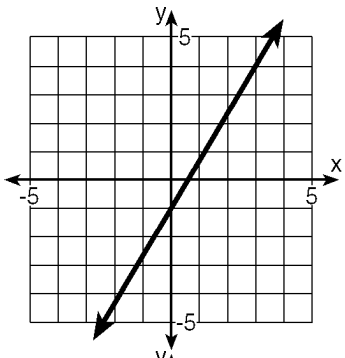


C)


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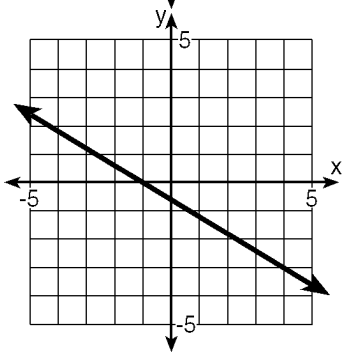


23) Which one of the following equations is equivalent to $\frac{x}{8} = 7$?

A) $\frac{x}{7} = \frac{1}{8}$ B) $\frac{x}{4} = 14$ C) $4x = 14$ D) $\frac{x}{16} = 14$

24) What is $8y^2 + 4y - 3$ subtracted from $5y^2 + 2y - 1$?

A) $3y^2 + 2y - 2$ B) $3y^2 - 2y + 2$ C) $-3y^2 + 2y - 2$ D) $-3y^2 - 2y + 2$

25) Factor the given polynomial:

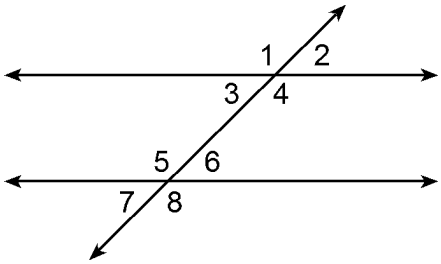
$x^2 + 12x + 36$

A) $(x - 6)(x - 6)$ B) $(x + 4)(x + 9)$ C) $(x + 6)(x + 6)$ D) $(x + 4)(x + 8)$

26) A triangle has coordinates $A(-1,-2)$, $B(-4,-2)$ and $C(-4,-5)$. What are the coordinates of point A', the image of point A, under a dilation with a scale factor of 3?

A) (-12,-6) B) (-6,-3) C) (-3,-6) D) (2,1)

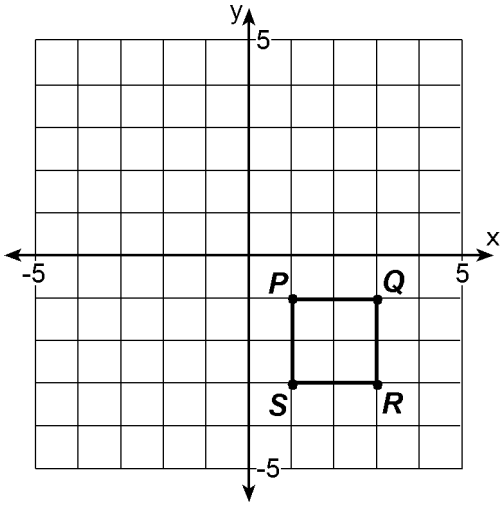
27) In the diagram below, two parallel lines are cut by a transversal. Based on this diagram, identify the angle relationship for the given angle pair.



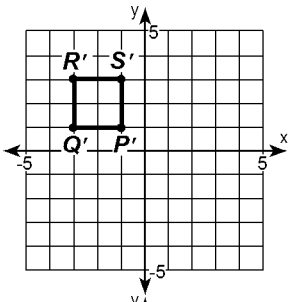
$\angle 3$ and $\angle 7$

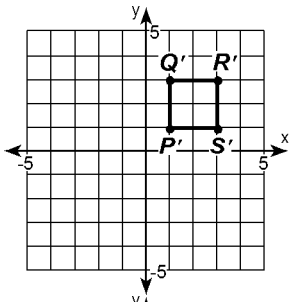
A) alternate interior angles
B) interior angles on the same side of the transversal
C) alternate exterior angles
D) corresponding angles

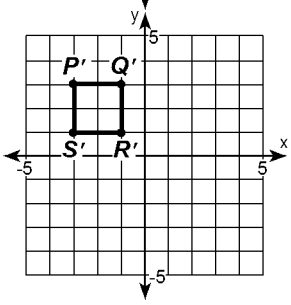
28) Given square *PQRS* below.

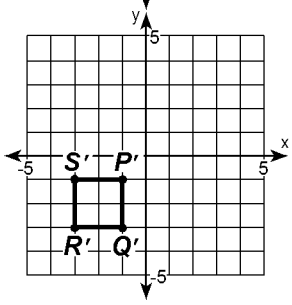


Which of the following graphs represent the image of square *PQRS* after a 180° rotation around the origin?

A)


C)


B)


D)


29) The translation $(x,y) \rightarrow (x - 2, y + 3)$ maps the point (7,2) onto the point whose coordinates are _____.

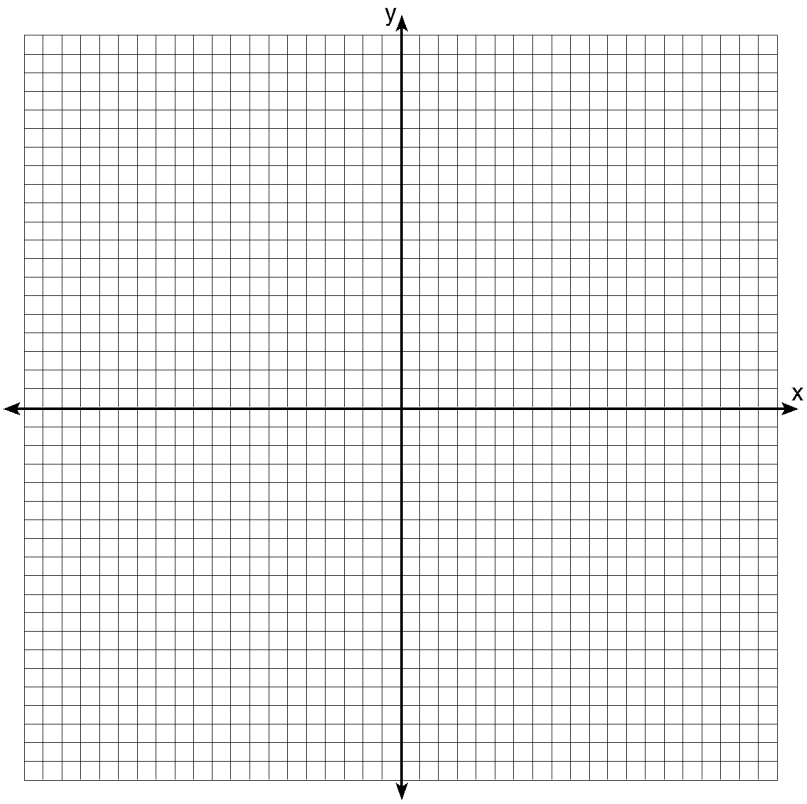
A) (9,5) B) (5,-1) C) (-14,6) D) (5,5)

30) Which real number property is illustrated by the expression $3(2 - x) = 6 - 3x$?

A) Distributive Property of Multiplication Over Subtraction
B) Multiplicative Identity Property
C) Multiplicative Inverse Property
D) Commutative Property

31) Solve the given system of equations graphically.

$x + 4y = 7$ and $2x - y = -4$



32) Factor the given algebraic expression by grouping the terms:

$12x^2 + 3y - 4xy - 9x$

Show your work.

Answer: _____

33) A design was constructed by using two rectangles: *ABDC* and $A'B'D'C'$. Rectangle $A'B'D'C'$ is the result of a translation of rectangle *ABDC*. The table of translations is shown below.

Rectangle *ABDC*	**Rectangle $A'B'D'C'$**
$A(2,4)$	$A'(3,1)$
B	$B'(-5,1)$
$C(2,-1)$	$C'(3,-4)$
$D(-6,-1)$	D'

Find the coordinates of points B and D'.

34) A textile manufacturer has orders for $12x^2 - 16x + 17$ yards of a certain upholstery fabric. They have $9x^2 - 12x - 10$ yards in their warehouse. How many more yards of fabric (in terms of x) must be manufactured to fulfill the orders?

Show your work.

Answer: _____ yd

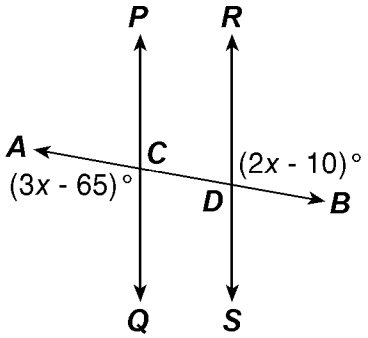
35) Solve the given equation for the variable and check the solution:

$6c = 2(3c - 4) + 2c$

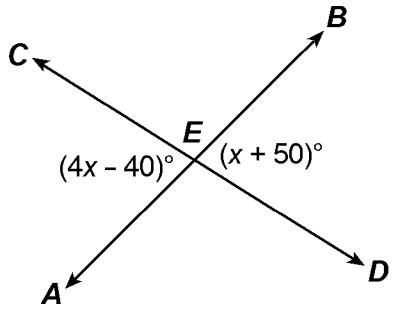
Show your work.

Answer: _____

36) In the accompanying diagram, $\overleftrightarrow{AB}$ intersects $\overleftrightarrow{PQ}$ and $\overleftrightarrow{RS}$ at C and D, respectively, $\overleftrightarrow{PQ} \parallel \overleftrightarrow{RS}$, $m\angle RDB = (2x - 10)°$, and $m\angle QCA = (3x - 65)°$. Use what you know about geometric angle relationships to find the value of x. Show all your work and explain how you got your answer.



37) In the accompanying diagram, $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect at E.



If m∠AEC = $(4x - 40)°$ and m∠BED = $(x + 50)°$, find the number of degrees in m∠AEC.

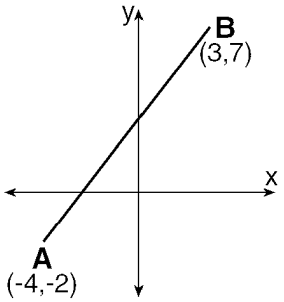
Show your work.

Answer: _____°

38) Solve the given system of equations by substitution. Show all work.

$8a + 3b = 11$
$4a - 5b = -1$

39) In the diagram below, point A has coordinates (-4,-2) and point B has coordinates (3,7). What is an equation of the line?



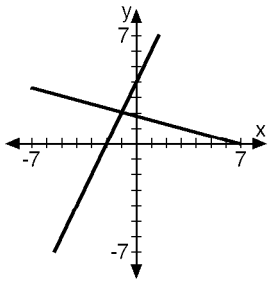
40) The tickets for a dance recital cost $5.00 for adults and $2.00 for children. If the total number of tickets sold was 295 and the total amount collected was $1,220, how many adult tickets were sold? [*Use an algebraic solution.*]

Show your work.

Answer: _____ adult tickets

1) B	2) D	3) B	4) D	5) C
6) C	7) B	8) A	9) C	10) B
11) A	12) C	13) D	14) B	15) D
16) A	17) C	18) B	19) A	20) D
21) B	22) A	23) B	24) D	25) C
26) C	27) D	28) A	29) D	30) A

31) (-1,2),



32) $(4x - 3)(3x - y)$
WORK SHOWN: $12x^2 + 3y - 4xy - 9x = (12x^2 - 9x) + (3y - 4xy) = 3x(4x - 3) - y(4x - 3) = (4x - 3)(3x - y)$

33) $B(-6,4)$, $D'(-5,-4)$

34) $3x^2 - 4x + 27$ yd
WORK SHOWN: $(12x^2 - 16x + 17) - (9x^2 - 12x - 10) = 12x^2 - 16x + 17 - 9x^2 + 12x + 10 = 3x^2 - 4x + 27$

35) $c = 4$
WORK SHOWN: $6c = 2(3c - 4) + 2c$, $6c = 6c - 8 + 2c$, $6c = 8c - 8$, $-2c = -8$, $c = 4$;
CHECK: $6(4) = 2(3(4) - 4) + 2(4)$, $24 = 2(12 - 4) + 8$, $24 = 2(8) + 8$, $24 = 16 + 8$, $24 = 24$

36) 55
SAMPLE ANSWERS: $\angle RDB \cong \angle QCA$ because they are alternate exterior angles, so $2x - 10 = 3x - 65$, $-x = 55$, $x = 55$.
OR $\angle QCA \cong \angle PCB$ because they are vertical angles, so $\angle PCB = (3x - 65)°$. $\angle PCB \cong \angle RDB$ because they are corresponding angles, so $2x - 10 = 3x - 65$, $-x = 55$, $x = 55$.

37) 80°
WORK SHOWN: $4x - 40 = x + 50$, $3x = 90$, $x = 30$, $4(30) - 40 = 80$

38) (1,1)

39) $y = \frac{9}{7}x + \frac{22}{7}$ (*or any other form*)

40) 210 adult tickets
WORK SHOWN: x = # of adult tickets, $295 - x$ = # of child tickets, $5.00x + 2.00(295 - x) = 1{,}220.00$, $5x + 590 - 2x = 1{,}220$, $3x = 630$, $x = 210$