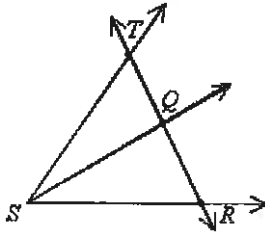


Geometry Semester Final 2015-2016

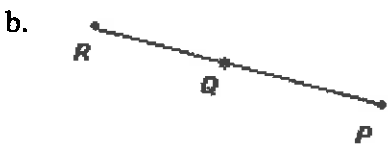
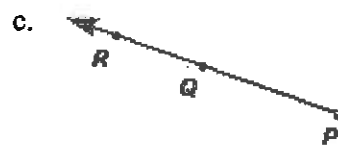
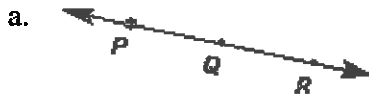
Study Guide

You will have 30 of these problems on your Final Examination

1. Name three points that are collinear.



2. \overrightarrow{PR} is represented by which sketch?



3. If $RS = 44$ and $QS = 68$, find QR .



4. Let C be between D and E . Use the Segment Addition Postulate to solve for v .

$DC = 3v - 30$

$CE = 6v - 15$

$DE = 27$

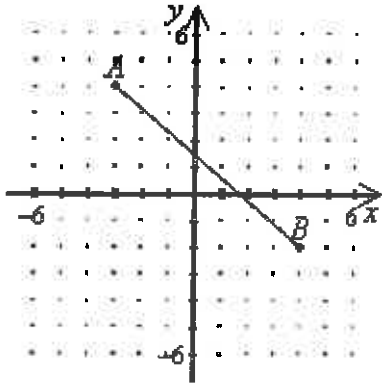
5. R , S , and T are collinear. S is between R and T . $RS = 2w + 1$, $ST = w - 1$, and $RT = 18$. Use the Segment Addition Postulate to solve for w . Then determine the length of \overline{RS} .

Name: _____

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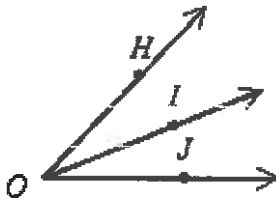
_____ 6. Find the distance between the points (1, 4) and (-2, -1).

_____ 7. The distance between points A and B is _____.

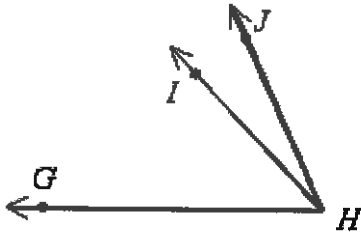


_____ 8. Find the midpoint of the segment with endpoints (9, 8) and (3, 5).

_____ 9. If $m\angle IOJ = 22^\circ$ and $m\angle HOI = 25^\circ$, then what is the measure of $\angle HOJ$?

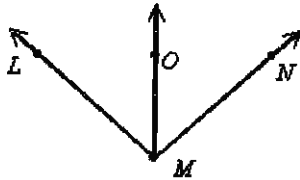


10. $m\angle JHI = (2x + 7)^\circ$ and $m\angle GHI = (8x - 2)^\circ$ and $m\angle JHG = 65^\circ$.
Find $m\angle JHI$ and $m\angle GHI$.



11. If an obtuse angle is bisected, the resulting angles are _____.
- a. always acute
 - b. right angles
 - c. never congruent
 - d. always obtuse

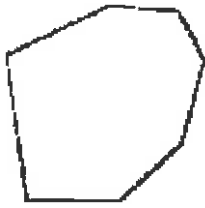
12. In the figure (not drawn to scale), \overrightarrow{MO} bisects $\angle LMN$, $m\angle LMO = (13x - 31)^\circ$, and $m\angle NMO = (x + 53)^\circ$.
Solve for x and find $m\angle LMN$.



Complete the conditional statement to make a true statement.

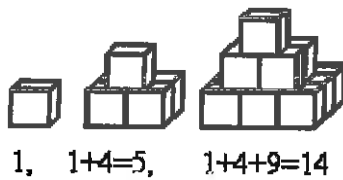
13. If $\angle R$ and $\angle S$ are complementary and $m\angle R = 35^\circ$, then
- a. $m\angle S = 145^\circ$
 - b. $m\angle S = 125^\circ$
 - c. $m\angle S = 55^\circ$
 - d. $m\angle S = 215^\circ$

14. The figure below is an example of a(n) _____.

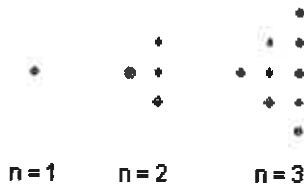


15. Name a polygon with 6 sides.
a. pentagon b. octagon

16. If the pattern indicated below is continued, what would be the total number of cubes in the 8th stage of the pattern?



17. The first three members of a sequence are shown. How many dots are in the fourth member of the sequence?



18. Goldbach's conjecture states: every even number greater than 2 can be written as the sum of two prime numbers. Which sum for 30 supports this conjecture?

- a. 15+15 b. 12+18 c. 17+13 d. 2+28

19. 27 cubes are stacked together to form a $3 \times 3 \times 3$ cube. If the outside of the larger cube is painted, there are 6 smaller cubes with only one face painted. How many cubes are painted on only one face when 125 cubes are stacked together to form a $5 \times 5 \times 5$ cube?

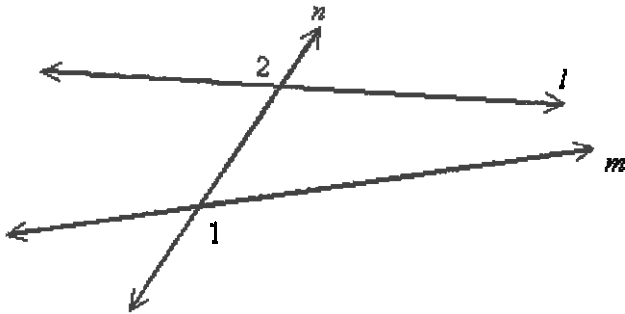
- _____ 20. "If I get a chance, I will succeed." In this conditional statement, the underlined portion is _____.
- the hypothesis
 - the converse
 - the argument
 - the conclusion

Choose the phrase that completes the following statement as stated by the Point, Line, and Plane Postulates:

- _____ 21. One plane _____ passes through three noncollinear points.
- always
 - never
 - sometimes
 - Point, Line, and Plane Postulates do not address this topic directly.
- _____ 22. A line _____ contains at least two points.
- always
 - never
 - sometimes
 - Point, Line, and Plane Postulates do not address this topic directly.
- _____ 23. A line passing through two distinct points in one plane _____ lies completely in that plane.
- always
 - never
 - sometimes
 - Point, Line, and Plane Postulates do not address this topic directly.
- _____ 24. Through any three distinct points there _____ exists exactly one line.
- sometimes
 - never
 - always
 - Point, Line, and Plane Postulates do not address this topic directly.
- _____ 25. Two lines that are not coplanar and do not intersect are called _____.
- | | |
|-------------|------------------|
| a. Parallel | c. perpendicular |
| b. oblique | d. skew lines |

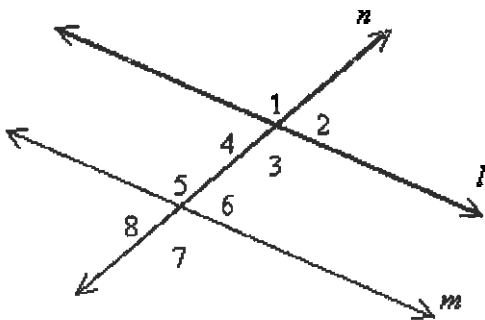
- _____ 26. For the cube shown, \overleftrightarrow{AD} and \overleftrightarrow{HG} are _____.
- | | |
|-------------------|------------------------|
| a. parallel lines | c. skew lines |
| b. oblique lines | d. perpendicular lines |

27. In the figure, $\angle 1$ and $\angle 2$ are _____.



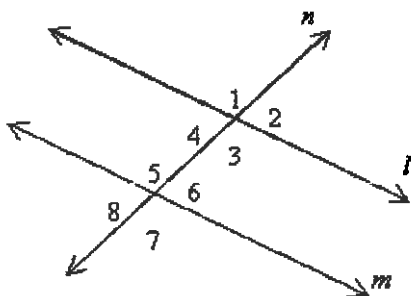
- a. alternate exterior angles
- b. alternate interior angles
- c. consecutive interior angles
- d. corresponding angles

28. In the figure, $\angle 6$ and $\angle 3$ are _____.



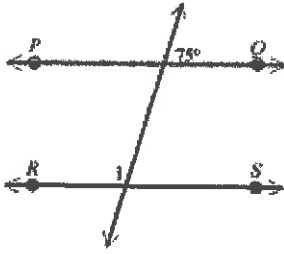
- a. alternate exterior angles
- b. consecutive interior angles
- c. corresponding angles
- d. alternate interior angles

29. In the figure, $\angle 6$ and $\angle 2$ are _____.

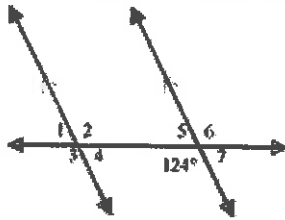


- a. alternate interior angles
- b. consecutive interior angles
- c. alternate exterior angles
- d. corresponding angles

30. Find $m\angle 1$ in the figure below. \overleftrightarrow{PQ} and \overleftrightarrow{RS} are parallel.

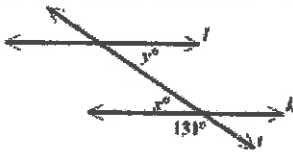


31. Use the figure to find the measure of $\angle 6$.

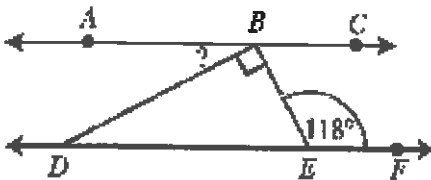


College Entrance Exam:

32. In the figure below, if l and k are parallel lines, what is the value of $x + y$?



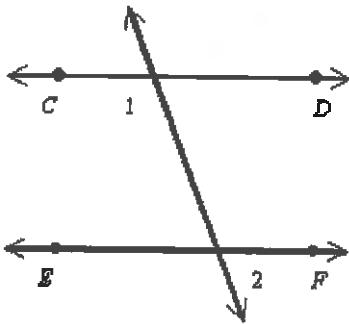
33. If \overline{AC} is parallel to \overline{DF} , what is the measure, in degrees, of $\angle ABD$?



Name: _____

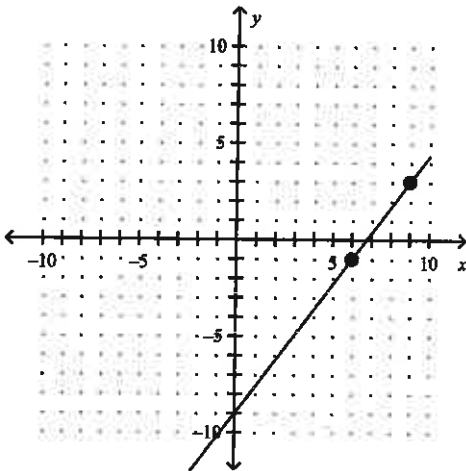
ID: A

34. Find the value of x that will allow you to prove that \overleftrightarrow{CD} below is parallel to \overleftrightarrow{EF} if the measure of $\angle 1$ is $(3x + 30)^\circ$ and the measure of $\angle 2$ is 81° . (The figure may not be drawn to scale.)



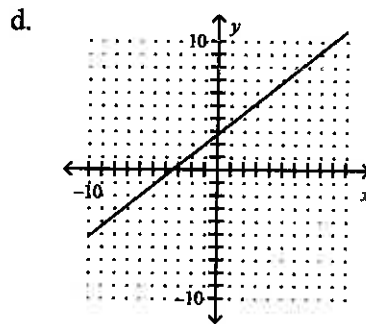
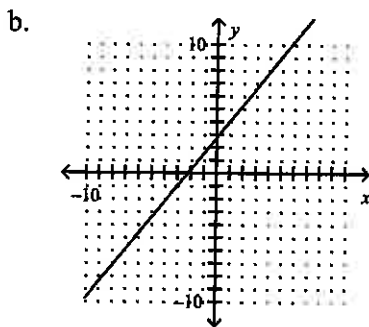
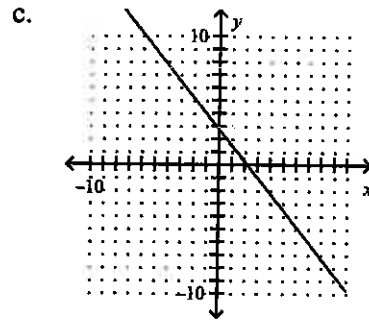
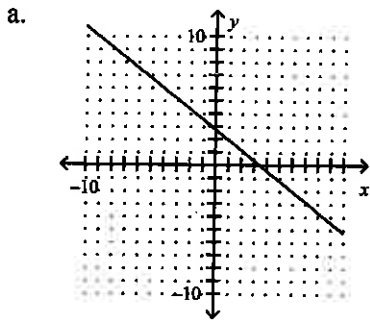
35. Find the slope of the line passing through the points $A(6, -5)$ and $B(-5, -7)$.

36. Find the slope of the line.

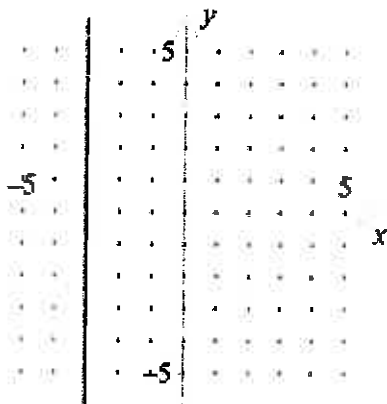


37. What is the slope of the line that passes through points $A (-2,-3)$ and $B (5,3)$?

38. Which graph shows the line that passes through $(-7, -6)$ and is parallel to a line with a slope of $\frac{5}{4}$?



39. Determine the slope of the line graphed below.



Name: _____

ID: A

____ 40. Find the slope of the line that contains $(2, 4)$ and $(4, 4)$.

____ 41. Write an equation that is parallel to $y = \frac{2}{3}x - 7$.

____ 42. Find the slope-intercept form of the line passing through the point $(7, -2)$ and parallel to the line $y = -8x - 4$.

____ 43. Write an equation that is parallel to $y = \frac{1}{2}x + 3$ and passes through $(0, 0)$.

____ 44. What is the slope of a line perpendicular to the line $-2x + 9y = 8$?

____ 45. Write an equation that is perpendicular to $y = -\frac{1}{2}x + 3$.

____ 46. Write an equation that is perpendicular to $y = -4x + 2$.

- _____ 47. Write the slope-intercept form of the equation of the line passing through the point $(-2, -5)$ and perpendicular to the line $y = \frac{2}{3}x - 1$.

- _____ 48. Which of the following are the x - and y -intercepts of the graph of the equation $6x - 4y = 2$?

a. x -intercept: $(3, 0)$
 y -intercept: $(0, -2)$

c. x -intercept: $(-\frac{1}{2}, 0)$

y -intercept: $(0, \frac{1}{3})$

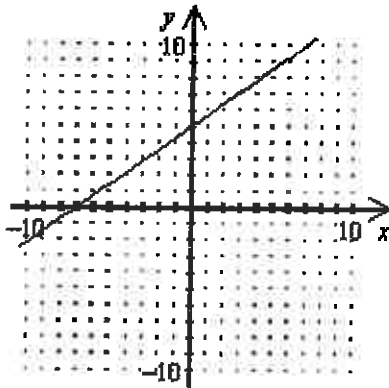
b. x -intercept: $(-2, 0)$
 y -intercept: $(0, 3)$

d. x -intercept: $(\frac{1}{3}, 0)$

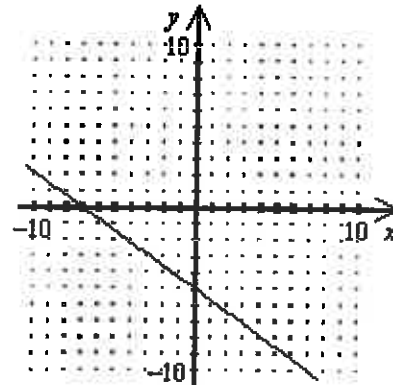
y -intercept: $(0, -\frac{1}{2})$

- _____ 49. Graph the equation $5x - 7y = -35$.

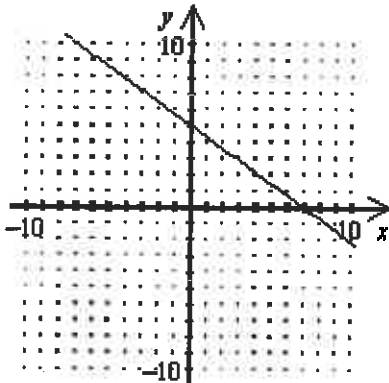
a.



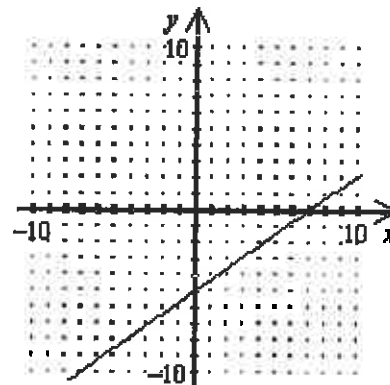
c.



b.

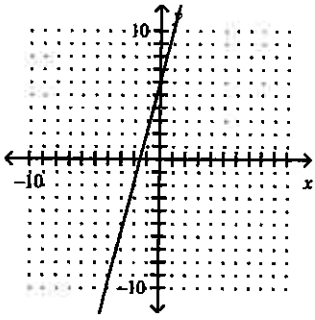


d.

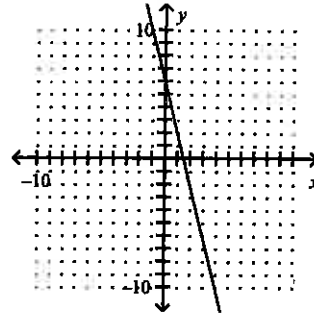


50. Graph the linear equation $8x - 2y = -12$ by finding x - and y -intercepts.

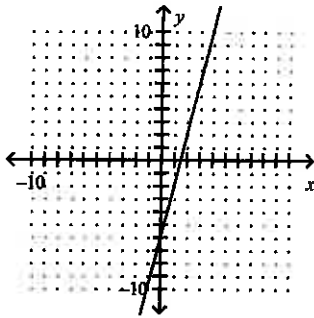
a.



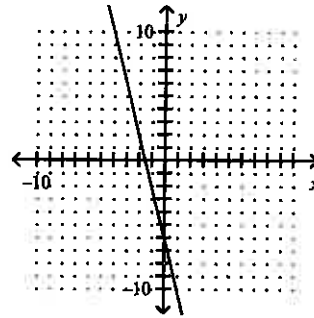
c.



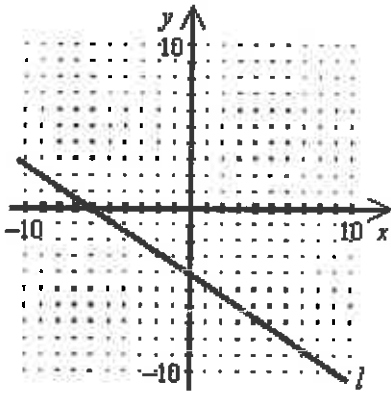
b.



d.



51. The graph of line l is shown below.



Write the equation of a line that is perpendicular to line l .

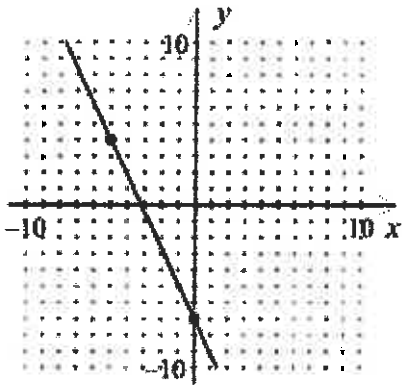
a.

b.

Name: _____

ID: A

52. Write an equation in slope-intercept form of the graph shown.



Geometry Semester Final

_____ 1. T is the midpoint of \overline{PQ} . Which one of the following is *not* an appropriate statement?

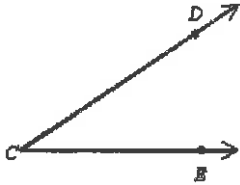
a. $\overline{PT} = \overline{TQ}$

c. $\overline{PT} \cong \overline{TQ}$

b. $\overline{PT} = \overline{PQ}$

d. $\overline{PT} + \overline{TQ} = \overline{PQ}$

_____ 2. Which does *not* name the angle below?



a. $\angle DCE$

b. $\angle CDE$

c. $\angle ECD$

d. $\angle C$

_____ 3. Which figure below is *not* a polygon?

a.



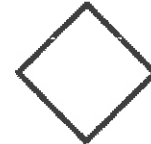
b.



c.



d.



_____ 4. Which figure below is *not* a convex polygon?

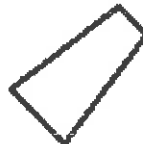
a.



b.



c.



d.



_____ 5. Which figure below is *not* a regular polygon?

a.



b.



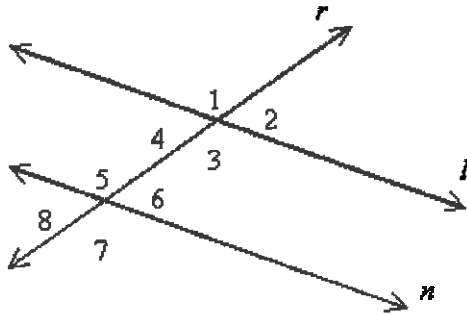
c.



d.

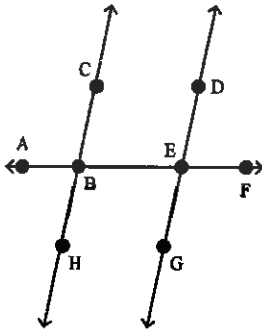


- _____ 6. State a counterexample to disprove the following conjecture:
A hot air balloon is a device that floats in the air.
- Hot air balloons are red.
 - Helium balloons also float.
 - A car is also a device.
 - Hot air is also warm.
- _____ 7. Decide which one of the following statements is false.
- Three noncollinear points determine a plane.
 - A line contains at least two points.
 - Through any two distinct points there exists exactly one line.
 - Any three points lie on a distinct line.
- _____ 8. Which of the following is an example of the Transitive Property?
- If $y = x - 4$, then $x - 4 = y$.
 - $x - 3 = x - 3$
 - If $x = -3$, then $x - 4 = -3 - 4$.
 - If $x - 3 = y$ and $y = -4$, then $x - 3 = -4$.
- _____ 9. In the figure, $l \parallel n$ and r is a transversal. Which of the following is not necessarily true?



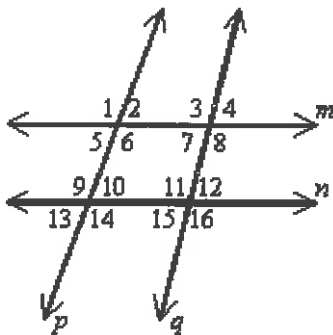
- | | |
|------------------------------|------------------------------|
| a. $\angle 8 \cong \angle 2$ | c. $\angle 5 \cong \angle 3$ |
| b. $\angle 2 \cong \angle 6$ | d. $\angle 7 \cong \angle 4$ |

10. In the figure shown, $\overleftrightarrow{HC} \parallel \overleftrightarrow{GD}$ and $m\angle ABC = 100^\circ$. Which of the following statements is false?



- a. $m\angle CBE = 80^\circ$
- b. $m\angle DEF = 80^\circ$
- c. $\angle DEB$ and $\angle CBE$ are corresponding angles.
- d. $\angle CBE$ and $\angle GEB$ are alternate interior angles.

11. Line m is parallel to line n and they are each intersected by the same two transversals. Which angle is NOT necessarily congruent to $\angle 4$?



- a. $\angle 12$
- b. $\angle 16$
- c. $\angle 7$
- d. $\angle 15$

12. Which best describes the relationship between the line that passes through $(7, 1)$ and $(10, 5)$ and the line that passes through $(-8, 5)$ and $(-5, 9)$?

- a. same line
- b. perpendicular
- c. neither perpendicular nor parallel
- d. parallel

- _____ 13. Which best describes the relationship between *Line 1* and *Line 2*?
Line 1 passes through $(-3, 6)$ and $(-7, 11)$
Line 2 passes through $(1, 8)$ and $(-4, 4)$
- perpendicular
 - They are the same line.
 - parallel
 - neither perpendicular nor parallel
- _____ 14. A line L_1 has slope $\frac{4}{9}$. The line that passes through which of the following pairs of points is parallel to L_1 ?
- | | |
|----------------------------|---------------------------|
| a. $(6, -3)$ and $(2, 6)$ | c. $(-5, 2)$ and $(6, 6)$ |
| b. $(12, -1)$ and $(2, 8)$ | d. $(-3, 2)$ and $(6, 6)$ |
- _____ 15. Which best describes the relationship between the lines with equations $-5x - 8y = 4$ and $-30x - 48y = 24$?
- neither parallel nor perpendicular
 - same line
 - parallel
 - perpendicular