Name: _____ Class: _____ Date: _____ ID: A

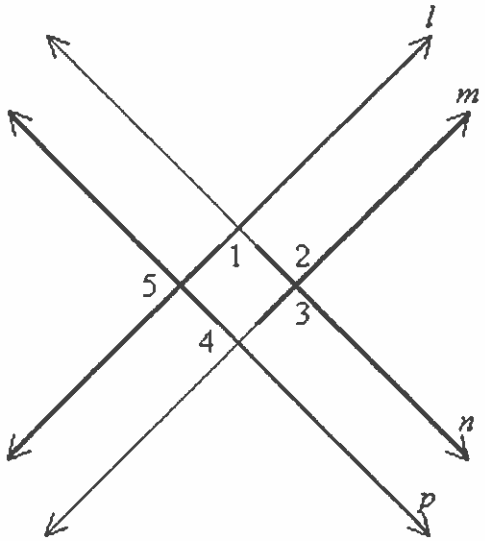
Geometry and Advanced Geometry Chapter 3 Test

1. Tell whether lines m and n are parallel or not parallel and explain (give the theorem or postulate).

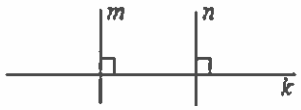
2. Write the slope-intercept form of the equation of the line passing through the point (5, –4) and perpendicular to the line $y = -\frac{4}{3}x + 5$.

3. Use the figure and the given information to determine which lines must be parallel. JUSTIFY YOUR ANSWER! (this is not a proof)

   Given: $\angle 1 \cong \angle 3$



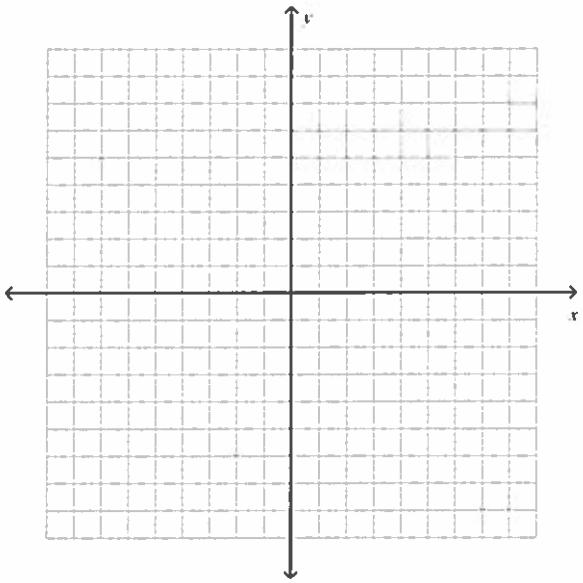
4. Tell whether lines m and n are parallel or not parallel and explain.



____ 5. 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 $(-4,\ 4)$

a. perpendicular
b. They are the same line.
c. parallel
d. neither perpendicular nor parallel

6. Line l passes through $(1, 1)$ and $(-2, -8)$. Graph the line perpendicular to l that passes through $(-2, 2)$.



____ 7. What is the slope of the line that passes through points A (-2,-3) and B (5,3)?

a. $\frac{6}{7}$

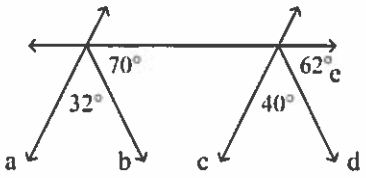
b. $\frac{7}{6}$

c. $-\frac{6}{7}$

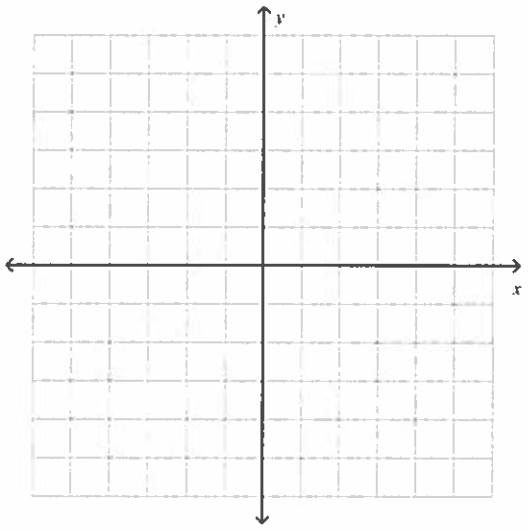
d. 0

Which lines, if any, can be proved parallel given the following diagram?

8.

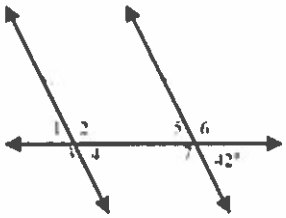


9. (BONUS) Find the distance from the point (0, 0) to the line with the equation $y = -7x - 8$.



10. Write an equation for the line passing through the point $(-3,-5)$ that has a slope of –5.

11. Use the figure to find the measure of $\angle 4$.



12. Find the slope of a line perpendicular to the line containing the points (3, –7) and (4, –3).

____ 13. What is the slope of a line perpendicular to the line $-2x + 9y = 8$?

a. $-\frac{2}{9}$

c. $-\frac{9}{2}$

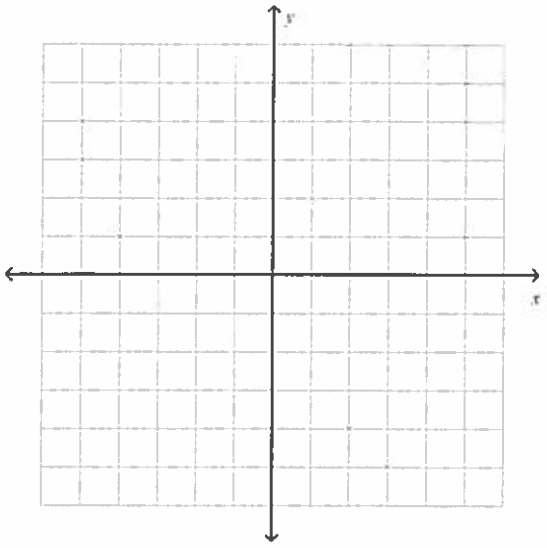
b. $\frac{2}{9}$

d. $\frac{9}{2}$

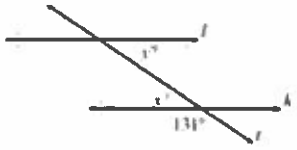
True or False:

14. If two parallel lines are intersected by a transversal, then consecutive interior angles are supplementary.

15. Find the distance between the lines with the equations $y = x + 3$ and $y = x - 2$.



____ 16. In the figure below, if l and k are parallel lines, what is the value of $x + y$?
(Find x, Find y, add them together)



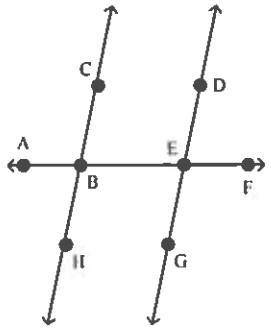
a. 49°
b. 180°
c. 131°
d. 98°

17. Write the slope-intercept form of the equation of the line passing through the point (2, –4) and parallel to the line $y = 5x + 5$.

18. Tell which line through the given points is steeper. *Explain.*
Line 1: $(5,6)$, $(2,5)$

Line 2: $(10,3)$, $(7,1)$

____ 19. In the figure shown, $\overleftrightarrow{HC} \parallel \overleftrightarrow{GD}$ and $m\angle ABC = 100°$. Which of the following statements is false?



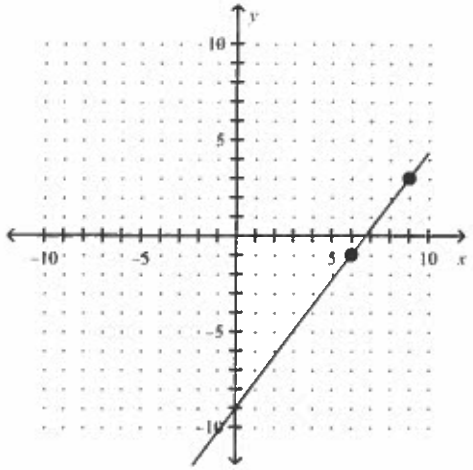
a. $m\angle CBE = 80°$
b. $m\angle DEF = 80°$
c. $\angle DEB$ and $\angle CBE$ are corresponding angles.
d. $\angle CBE$ and $\angle GEB$ are alternate interior angles.

20. Are the lines with the equations $y = -\frac{1}{3}x + 2$ and $y = -\frac{1}{3}x - 2$ *parallel*, *perpendicular*, or *skew*? Explain your answer.

____ 21. Write the slope-intercept form of the equation of the line passing through the point (–2, –5) and perpendicular to the line $y = \frac{2}{3}x - 1$.

a. $y = -\frac{3}{2}x - 8$
b. $y = \frac{2}{3}x + \frac{11}{3}$
c. $y = \frac{3}{2}x + 2$
d. $y = -\frac{2}{3}x - \frac{19}{3}$

____ 22. Find the slope of the line.



a. $\frac{2}{15}$

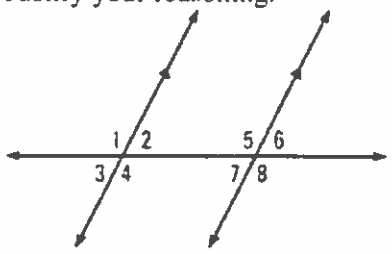
b. $\frac{15}{2}$

c. $\frac{3}{4}$

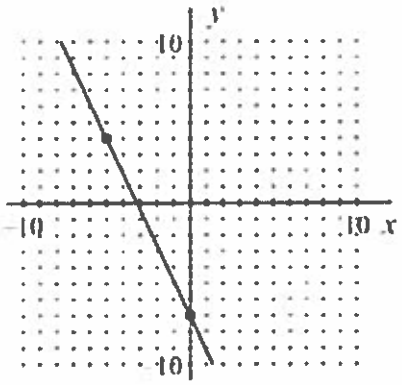
d. $\frac{4}{3}$

23. True or False: If two lines are perpendicular to the same transversal, then they are parallel.

24. (BONUS - BE CLEAR AND CONCISE IN YOUR JUSTIFICATION)
$\angle 1$ and $\angle 6$ are same side exterior angles. What is the relationship between same side exterior angles? Justify your reasoning.



____ 25. Write an equation in slope-intercept form of the graph shown.



a. $y = -\frac{11}{5}x - 7$

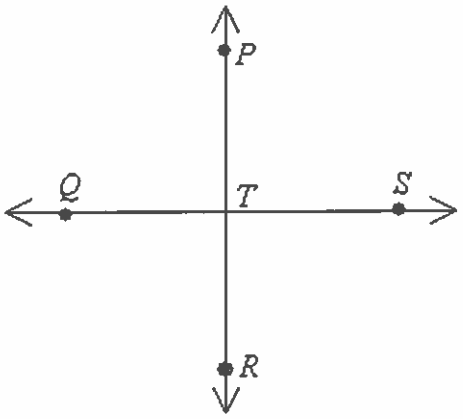
b. $y = \frac{5}{11}x - 7$

c. $y = \frac{11}{5}x - 7$

d. $y = -\frac{5}{11}x - 7$

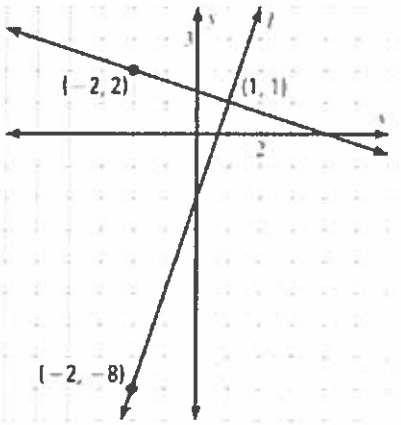
26. What is the slope of a line parallel to the line $9x + 3y = 2$?

27. (BONUS)
Given: $\overleftrightarrow{QS} \perp \overleftrightarrow{PR}$
Prove: $m\angle PTS = 90°$



Geometry and Advanced Geometry Chapter 3 Test
Answer Section

1. parallel; Corresponding Angles Converse
2. $y = \frac{3}{4}x - \frac{31}{4}$
3. $l \parallel m$
4. parallel; Lines Perpendicular to a Transversal Theorem (Thm. 3.12)
5. A
6. Answer:



7. A
8. $d \parallel c$
9. $\frac{4}{5}\sqrt{2}$
10. $y = -5x - 20$
11. 42°
12. $-\frac{1}{4}$
13. C
14. True
15. $\frac{5}{2}\sqrt{2}$
16. D
17. $y = 5x - 14.$
18. line 2
19. C
20. parallel; Slopes are equal and y-intercepts are different
21. A
22. D
23. True

24. Same side exterior angles are supplementary. $\angle 1 \cong \angle 8$ by the Alternate Exterior Angles Theorem. $\angle 6$ and $\angle 8$ are supplementary since they are a linear pair. Therefore, $\angle 1$ and $\angle 6$ are supplementary since $\angle 1$ and $\angle 8$ have the same measure.

25. A

26. –3

27.

Statements	Reasons
1. $\overleftrightarrow{QS} \perp \overleftrightarrow{PR}$	1. Given
2. $\angle PTS$ is a right $\angle$	2. Theorem 3.9
3. $m\angle PTS = 90°$	3. Definition of a right angle