

10/15/2015  
Test Review

G.5 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.  
 G.GPE.4 Use coordinates to prove simple geometric theorems algebraically.  
 G.GPE.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

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Find the distance between each pair of points. Round your answer to the nearest tenth, if necessary.

1)  $(1, -2)$   $(-5, 5)$

$7^2 + 6^2 = \sqrt{85} = 9.2$

2)  $(-2, 3)$   $(-7, -7)$

$\sqrt{(-7 - (-2))^2 + (-7 - 3)^2} = \sqrt{(-5)^2 + (-10)^2} = \sqrt{125} = 11.2$

3) Name a point that is between 50 and 60 units away from  $(7, -2)$  and state the distance between the two points.

$(60, -2)$   
 $(7, 48)$

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Write the slope-intercept form of the equation of each line.

4)  $3x - 2y = -16$   $Y = \frac{3}{2}X + 8$

5)  $-8y = -11x - 48$   $Y = \frac{11}{8}Y + 6$

Write the standard form of the equation of the line through the given point with the given slope.

6) through:  $(1, 2)$ , slope = 7  $Y - 2 = 7(X - 1)$   $Y - 2 = 7X - 7$   $Y = 7X - 5$

7) through:  $(-1, 2)$ , slope = 2  $Y - 2 = 2(X - (-1))$   $Y - 2 = 2X + 2$   $Y = 2X + 4$

Write the point-slope form of the equation of the line described.

8) through:  $(4, 2)$ , parallel to  $y = -\frac{3}{4}x - 5$   $Y - 2 = -\frac{3}{4}(X - 4)$   $Y - 2 = -\frac{3}{4}X + 3$   $Y = -\frac{3}{4}X + 5$

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Do the following lengths form a right triangle?

9)  $36 + 64 = 81$   
 $100 \neq 81$   
 No

10)  $a = 2.1, b = 7.2, c = 7.5$   
 $2.1^2 + 7.2^2 = 7.5^2$   
 $4.41 + 51.84 = 56.25$   
 $56.25 = 56.25$   
 Yes

Find each missing length to the nearest tenth.

11)  $3^2 + 6^2 = C^2$   
 $45 = C^2$   
 $\sqrt{45} = C$   
 $6.7 = C$

12)  $11^2 - 39^2 = b^2$   
 $121 - 1521 = b^2$   
 $105.79 = b$   
 $10.3$

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13)  $5.2^2 + 9.2^2 = C^2$   
 $27.04 + 84.64 = C^2$   
 $111.68 = C^2$   
 $\sqrt{111.68} = C$   
 $10.6$

14)  $5.3^2 + b^2 = 7.2^2$   
 $28.09 + b^2 = 51.84 - 28.09$   
 $b^2 = 23.75$   
 $\sqrt{23.75} = b$   
 $4.9$

15) The bottom of a ladder must be placed 3 feet from a wall. The ladder is 12 feet long. How far above the ground does the ladder touch the wall?

$b^2 + 3^2 = 12^2$   
 $b^2 + 9 = 144$   
 $b^2 = 135$   
 $\sqrt{135} = b$   
 $11.6$

16) A soccer field is a rectangle 90 meters wide and 120 meters long. The coach asks players to run from one corner to the corner diagonally across. What is the distance?

$a = 90, b = 120$   
 $c^2 = a^2 + b^2$   
 $c^2 = 8100 + 14400$   
 $c^2 = 22500$   
 $\sqrt{22500} = c$   
 $150 = c$

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Use the Pythagorean theorem to answer 1-3.

1.  $a = 6, b = 10, c = 11.7$       2.  $a = 11, c = 17, b = 13$

3. Coach Killips is building Piper a tree house. The tree house will be 12 feet up the tree and the ladder will be placed 5 feet from the base of the tree. How long will the ladder need to be?

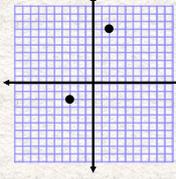
$a^2 + b^2 = c^2$   
 $12^2 + 5^2 = c^2$   
 $144 + 25 = c^2$   
 $169 = c^2$   
 $\sqrt{169} = 13$

Hemp thread

Use the distance formula to answer 4 and 5.

4. Find the distance between (2, 6) and (9, -4).

5. Find the distance between the points on the graph to the right.



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6. Find the slope of the line that goes through (3, 7) and (-2, 9).

7. Given a slope of  $m = \frac{1}{6}$ , list the parallel and perpendicular slope.  
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8. Determine if the lines are parallel, perpendicular or neither.  
 Line 1: (5, 2) and (-2, -6)  
 Line 2: (6, 6) and (14, -1)

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Jay found a treasure map. Jay's current location is (-5, -6). On the map there is a tree at (4, -3), a barn at (9, -6), a rock at (2, 8) and the treasure at (-8, 3). Use this information to answer the following questions:

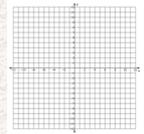
9. Find the distance between Jay and the tree.

10. Find the slope from the tree to the barn.

11. The slope from Jay to the tree is  $\frac{1}{3}$ . The slope from Jay to the treasure is -3. Are these lines parallel, perpendicular, or neither? Justify your answer.

12. The line from Jay to the rock is given by the equation  $4x - 2y = 8$ . Find the slope, the parallel slope, and the perpendicular slope.

13. There is a wall built between Jay and the treasure given by the line  $y = \frac{2}{3}x + 1$ . What is the equation of the line parallel to this that goes through the point (6, 7)?

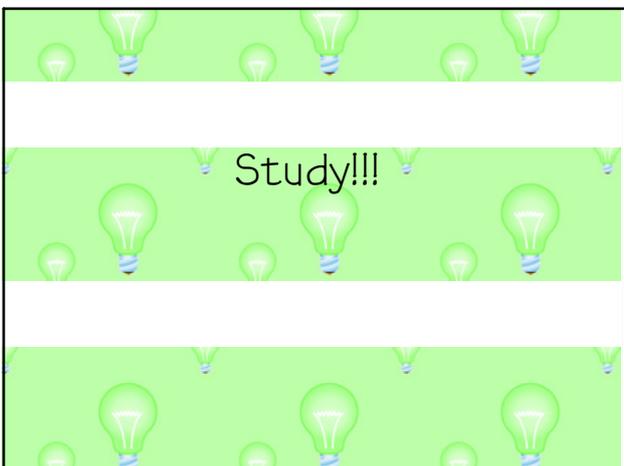


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14. The center of a clock is located at (-7, 3). The 12 is located at (-4, 8). If each unit represents 1 inch, how long must the minute hand be to reach the numbers?

15. The center of a clock is located at (0, 5). The 12 is located at (6, -2). If each unit represents 1 inch, how far apart are the numbers 6 and 12?

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