Review for Quiz

Answers

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1. Given the points A(-4, 5) and B(1, -5) find the midpoint.

$$midpt = \left(\frac{-4+1}{2}, \frac{5-5}{2}\right) = \left(-\frac{3}{2}, 0\right)$$

2. Write the equation of a circle with a diameter that passes through the points (4, 5) and (-2, 8).

midpoint = (1, 13/2) $(x - 1)^2 + (y - 13/2)^2 = r^2$

$(x - 1)^2 + (y - 13/2)^2 = 45/4$ $(4 - 1)^2 + (5 - 13/2)^2 = r^2$

$9 + 9/4 = r^2$

$r^2 = 45/4$

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3. Write the equation of a circle with center (-5, 3) and radius $3\sqrt{2}$)² = 18

$$(x+5)^2 + (y-3)^2 = 18$$

4. Write the equation of a line in **slope-intercept** and **standard** form that passes through the point (-3, 5) and is parallel to the line 2x – 3y – 7 = 0.

$m = \frac{2}{3}$ $3y = 2x - 7$

$y - 5 = \frac{2}{3}(x+3)$ $y = \frac{2}{3}x - 7$

$3y - 15 = 2x + 6$

Standard : $2x - 3y + 21 = 0$

slope-int : $y = \frac{2}{3}x + 7$

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5. Write the equation of a line in slope-intercept and point-slope form that passes through the points (3, 1) and (-5, -8).

$m = \frac{-8-1}{-5-3} = \frac{9}{8}$

$y - 1 = \frac{9}{8}(x-3)$ or $y + 8 = \frac{9}{8}(x+5)$

$8y - 8 = 9x - 27 \rightarrow y = \frac{9}{8}x - \frac{19}{8}$

6. Write an equation of a line perpendicular to the line 2y = 4x – 10 that passes through the point (-4, 5).

no form asked. Go easy $\hookrightarrow y = 2x - 5$

$y - 5 = -\frac{1}{2}(x+4)$ $\perp m = -\frac{1}{2}$

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7. State the domain and range of the function, g : {(-3, 1), (2, -5), (-1, -1), (3, 1)}

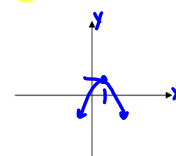Domain: $\{-3, 2, -1, 3\}$ Range: $\{1, -5, -1\}$

How do you determine from a given set of points whether or not the relation is a function?

If each x-value maps to exactly one y-value it's a function

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8 – 10: Sketch the function. Find the domain and range. If there are domain restrictions, show algebraically.
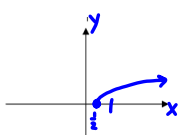
No trouble!

8.   y = -x² + 2x   Sketch:
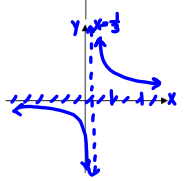
Domain: $(-\infty, \infty)$

Range: $(-\infty, 1]$

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9. $y = \sqrt{2x-1}$ Sketch:

Domain: $\left[\frac{1}{2}, \infty\right)$

Range: $[0, \infty)$

$2x - 1 \geq 0$
$x \geq \frac{1}{2}$

10. $y = \frac{4}{3x-1}$ Sketch:

Domain: $\left(-\infty, \frac{1}{3}\right) \cup \left(\frac{1}{3}, \infty\right)$

Range: $(-\infty, 0) \cup (0, \infty)$

$3x - 1 = 0$
$x = \frac{1}{3}$

$y = x = \frac{1}{3}$

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11. Given: $f(x) = x^2 - 3x + 4$, find

a. $f(2) = 4 - 6 + 4 = 2$

b. $f(-2) = 4 + 6 + 4$
               $= 14$

c. $f(a-1) =$
$(a-1)^2 - 3(a-1) + 4$
$= a^2 - 2a + 1 - 3a + 3 + 4$
$= a^2 - 5a + 8$

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