

Name: Key

Date: _____

Review

1. Find the equation of the line given the two points (1,-2) and (2,-14)

$$\frac{-14 - (-2)}{2 - 1} = \frac{-12}{1} = -12$$

$$y - (-2) = -12(x - 1)$$

$$y + 2 = -12x + 12$$

$$\boxed{y = -12x + 10}$$

2. Using the above question, find the point y-value of the point (0,y).

$$y = -12x + 10$$

$$y = -12(0) + 10 = 10$$

$$\boxed{(0, 10)}$$

3. Find the horizontal, vertical asymptote/s and holes if any:

$$\frac{(2x + 3)(\cancel{x - 4})}{x^2 - 16}$$
$$\frac{(2x + 3)(\cancel{x - 4})}{(x + 4)(x - 4)}$$

hole: $x = 4$

HA: $y = 2$

VA: $x = -4$

5. Using the piecewise function find $f(-4)$, $f(-3)$, $f(2)$, and $f(5)$

$$f(x) = \begin{cases} -x^2 + 4x, & x < -3 \\ 3, & -3 < x \leq 2 \\ -x, & x > 2 \end{cases}$$

$$f(-4) = -(-4)^2 + 4(-4) = -16 - 16 = \boxed{-32}$$

$$f(-3) = \boxed{\text{undef.}} \text{ (no equation for } x = -3)$$

$$f(2) = \boxed{3}$$

$$f(5) = \boxed{-5}$$

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6. Find the vertical asymptote/s: $\frac{2x + 10}{3x^2 + 9x - 30}$ $\frac{2(x+5)}{3(x^2+3x-10)}$
 $\frac{2(x+5)}{3(x+5)(x-2)}$

$$VA = \boxed{x = -5}$$

7. Find the hole in the function: $\frac{3x^2 + 4x}{6x^2 - 2x} = \frac{\cancel{x}(3x+4)}{2\cancel{x}(3x-1)} =$

$$\text{hole } \boxed{x = 0}$$

8. Find the horizontal asymptote/s: $\frac{16x^{50} - 2x^{21} + 4x^3 + 6}{8x^{50} + 4x^{12} - 32}$

$$y = \frac{16}{8} = \boxed{2}$$

9. What is the value of $\sin\left(\frac{3\pi}{4}\right) = \frac{\sqrt{2}}{2}$

$$\begin{array}{c} \textcircled{S} | A \\ \hline T | C \end{array}$$

10. What is the value of $\cos\left(\frac{5\pi}{6}\right) = -\frac{\sqrt{3}}{2}$

$$\begin{array}{c} \textcircled{S} | A \\ \hline T | C \end{array}$$

11. What is the value of $\tan\left(\frac{3\pi}{2}\right) = \frac{\sqrt{4}}{\sqrt{0}} = \text{undef}$

$$\begin{array}{c} \textcircled{S} | A \\ \hline T | C \end{array}$$

12. What is the value of $\sec\left(\frac{\pi}{4}\right) = \frac{2}{\sqrt{2}}$

$$\frac{1}{\cos}$$