

Non-AP Calculus Ch. P1-P2 Quiz **Review**

Solve for x by Factoring

1)  $7x^2 = 6 - 19x$

2)  $12x^2 - 10 = -26x$

Factored Form: \_\_\_\_\_

Factored Form: \_\_\_\_\_

Solution: \_\_\_\_\_

Solution: \_\_\_\_\_

3) Identify any intercepts (if any) and test for symmetry  $y = 25x - x^3$

x-intercept(s): \_\_\_\_\_ y-intercept: \_\_\_\_\_ Symmetry: \_\_\_\_\_

4) Identify the type(s) of symmetry for:  $x^2y^4 + 2x^2y - 1 = 0$

5) Find the point(s) of intersection (ordered pairs!) of the graphs of the equations:

$x^2 + y^2 = 25$

$-3x + y = 15$

6) Find an equation of the line (point-slope form) that passes through the points  $(-5, -9)$  and  $(-6, -1)$

7) Find an equation of the line (point-slope form) containing the point  $(-1, 7)$  that is perpendicular to the line  $4x - 5y = 17$

8) Find an equation of the line (point-slope form) containing the point  $(-6, 12)$  that is parallel to the line  $6x - 13y + 8 = 0$

9) Write an equation of the line that passes through  $(-3, -5)$  and is perpendicular to the line  $x = 2$

10) Write an equation of the line that passes through  $(2, -5)$  and is parallel to the line  $x = -5$

Key

Solve for x by Factoring

1)  $7x^2 = 6 - 19x$   
 $7x^2 + 19x - 6 = 0$

$$\begin{array}{r} 1, 42 \\ 3, 21 \\ 6, 7 \\ 3, 14 \\ \hline -2 \quad -42 \quad 21 \\ 7 \quad 19 \quad 7 \end{array}$$

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

Factored Form:  $(7x - 2)(x + 3)$

Solution:  $x = \frac{2}{7}, -3$

2)  $12x^2 - 10 = -26x$   
 $12x^2 + 26x - 10 = 0$

$$\begin{array}{r} 1, 30 \\ 2, 15 \\ 3, 10 \\ 5, 6 \\ \hline -2 \quad -30 \quad 15 \\ 6 \quad 13 \quad 6 \end{array}$$

$2(6x^2 + 13x - 5) = 0$   
 $(x - \frac{1}{3})(x + \frac{5}{2})$

$2(3x - 1)(2x + 5)$

Factored Form:  $2(3x - 1)(2x + 5)$

Solution:  $x = \frac{1}{3}, -\frac{5}{2}$

3) Identify any intercepts (if any) and test for symmetry  $y = 25x - x^3$

$(-y) = 25(-x) - (-x^3)$   
 $-y = -25x + x^3$

$y = 25x - x^3$

x-int:  $0 = 25x - x^3$   
 $0 = x(25 - x^2)$   
 $0 = x(5 - x)(5 + x)$

$x = 0, 5, -5$

x-intercept(s):  $(0, 0), (5, 0), (-5, 0)$  y-intercept:  $(0, 0)$  Symmetry: origin symmetry  
 $y = 0 - 0 = 0$

4) Identify the type(s) of symmetry for:  $x^2y^4 + 2x^2y - 1 = 0$

$(-x)^2y^4 + 2(-x)^2y - 1 = 0$

$x^2y^4 + 2x^2y - 1 = 0 \checkmark$

y-axis symmetry

5) Find the point(s) of intersection (ordered pairs!) of the graphs of the equations:

$x^2 + y^2 = 25$

$-3x + y = 15$

$y = 3x + 15 \rightarrow x^2 + y^2 = 25$   
 $x^2 + (3x + 15)^2 = 25$

$x^2 + (3x + 15)(3x + 15) = 25$

$x^2 + 9x^2 + 45x + 45x + 225 = 25$

$10x^2 + 90x + 200 = 0$

$10(x^2 + 9x + 20) = 0$

$10(x + 4)(x + 5) = 0$

$x = -4, -5$

$y = 3x + 15$

$y = 3(-4) + 15 = 3 \rightarrow (-4, 3)$

$y = 3(-5) + 15 = 0 \rightarrow (-5, 0)$

$$\begin{array}{r} 4 \quad 20 \quad 5 \\ 1 \quad 1 \quad 1 \\ \hline 19 \end{array}$$

$$y - y_1 = m(x - x_1)$$

- 6) Find an equation of the line (point-slope form) that passes through the points  $(-5, -9)$  and  $(-6, -1)$

$$\text{slope: } m = \frac{-1 - (-9)}{-6 - (-5)} = \frac{8}{-1} = -8$$

$$\text{point: } (-5, -9)$$

$$\boxed{\begin{array}{l} y + 9 = -8(x + 5) \\ \text{or} \\ y + 1 = -8(x + 6) \end{array}}$$

- 7) Find an equation of the line (point-slope form) containing the point  $(-1, 7)$  that is perpendicular to the line  $4x - 5y = 17$

$$-5y = -4x + \frac{17}{-5}$$

$$y = \frac{4}{5}x - \frac{17}{5}$$

$$\swarrow \text{slope: } m = \frac{4}{5}$$

$$\text{point: } (-1, 7)$$

$$\text{slope } m_2 = -\frac{5}{4}$$

$$\boxed{y - 7 = -\frac{5}{4}(x + 1)}$$

- 8) Find an equation of the line (point-slope form) containing the point  $(-6, 12)$  that is parallel to the line  $6x - 13y + 8 = 0$

$$6x - 13y + 8 = 0$$

$$-13y = -6x - 8$$

$$y = \frac{6}{13}x - \frac{8}{13}$$

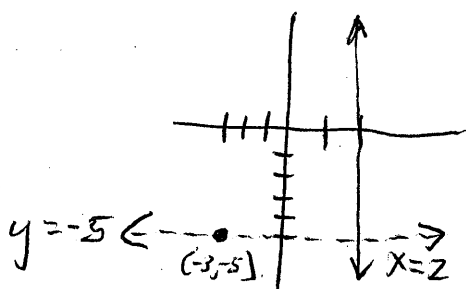
$$m = \frac{6}{13}$$

$$\text{point: } (-6, 12)$$

$$\text{slope: } m = \frac{6}{13}$$

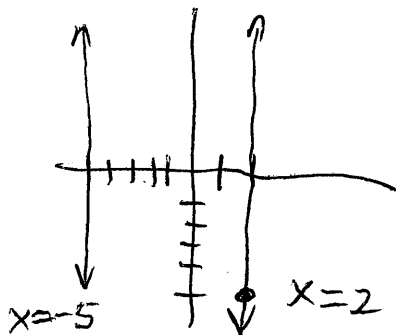
$$\boxed{y - 12 = \frac{6}{13}(x + 6)}$$

- 9) Write an equation of the line that passes through  $(-3, -5)$  and is perpendicular to the line  $x = 2$



$$\boxed{y = -5}$$

- 10) Write an equation of the line that passes through  $(2, -5)$  and is parallel to the line  $x = -5$



$$\boxed{x = 2}$$