

Solve for x by Factoring

1)  $3x^2 - 2x = 5$

2)  $4x^2 - 4x - 8 = 0$

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

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

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3) Identify any intercepts ( if any) and test for symmetry  $y = 25 - x^2$

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

4) Identify the type(s) of symmetry for:  $5x^1y^4 + 3x^2y^6 - 12 = 0$

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

$x^2 + y^2 = 10$

$x + 3y = 10$

$$\text{Slope } m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\text{slope-intercept form: } y = mx + b$$

$$\text{point-slope form: } y - y_1 = m(x - x_1)$$

- 6) Find an equation of the line (point-slope form) that passes through the points  $(4, -1)$  and  $(-3, -2)$
- 7) Find an equation of the line (point-slope form) containing the point  $(-2, 3)$  that is perpendicular to the line  $3x + 5y = 11$
- 8) Find an equation of the line (point-slope form) containing the point  $(-5, 1)$  that is parallel to the line  $5x - 7y + 1 = 0$
- 9) Write an equation of the line that passes through  $(-3, -5)$  and is parallel to the line  $x = 1$
- 10) Write an equation of the line that passes through  $(4, -5)$  and is perpendicular to the line  $y = -2$

Non-AP Calculus Ch. P1-P2 Quiz Review WS #2

Key

Solve for x by Factoring

1)  $3x^2 - 2x = 5$

$3x^2 - 2x - 5 = 0$

$(x - \frac{5}{3})(x + 1)$

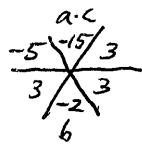
$(3x - 5)(x + 1) = 0$

$3x - 5 = 0 \quad | \quad x + 1 = 0$

$x = \frac{5}{3} \quad | \quad x = -1$

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

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



2)  $4x^2 - 4x - 8 = 0$

$4(x^2 - x - 2) = 0$

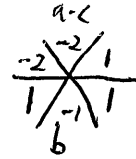
$4(x - 2)(x + 1) = 0$

$x - 2 = 0 \quad | \quad x + 1 = 0$

$x = 2 \quad | \quad x = -1$

Factored Form:  $4(x - 2)(x + 1)$

Solution:  $x = 2, x = -1$



3) Identify any intercepts (if any) and test for symmetry

$y = 25 - x^2$

x-int:

$0 = 25 - x^2$

$0 = (5 - x)(5 + x)$

$x = 5, -5$

y-int:

$y = 25 - 0^2$

$y = 25$

$y = 25 - (-x)^2$   
 $y = 25 - x^2$

x-intercept(s):  $(5, 0), (-5, 0)$  y-intercept:  $(0, 25)$  Symmetry: y-axis symmetry

4) Identify the type(s) of symmetry for:  $5x^4y^4 + 3x^2y^6 - 12 = 0$

$5x(-y)^4 + 3x^2(-y)^6 - 12 = 0$

$5xy^4 + 3x^2y^6 - 12 = 0$

x-axis symmetry

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

$x^2 + y^2 = 10$

$x + 3y = 10$

$x = 10 - 3y$

$(10 - 3y)^2 + y^2 = 10$

$(10 - 3y)(10 - 3y) + y^2 = 10$

$100 - 30y - 30y + 9y^2 + y^2 = 10$

$10y^2 - 60y + 90 = 0$

$10(y^2 - 6y + 9) = 0$

$10(y - 3)(y - 3) = 0$

$y = 3$

$x + 3(3) = 10$

$x = 1$

point of intersection

$(1, 3)$

$$\text{slope } m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\text{slope-intercept form: } y = mx + b$$

$$\text{point-slope form: } y_2 - y_1 = m(x_2 - x_1)$$

- 6) Find an equation of the line (point-slope form) that passes through the points (4, -1) and (-3, -2)

$$m = \frac{-2 - (-1)}{-3 - 4}$$

$$m = \frac{-1}{-7} = \frac{1}{7}$$

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

$$\text{point: } (4, -1)$$

$$\text{slope: } m = \frac{1}{7}$$

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

- 7) Find an equation of the line (point-slope form) containing the point (-2, 3) that is perpendicular to the line  $3x + 5y = 11$

$$5y = -3x + 11$$

$$y = -\frac{3}{5}x + \frac{11}{5}$$

$$m = -\frac{3}{5}$$

$$m_2 = \frac{5}{3}$$

$$\text{point: } (-2, 3)$$

$$m_2 = \frac{5}{3}$$

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

- 8) Find an equation of the line (point-slope form) containing the point (-5, 1) that is parallel to the line

$$5x - 7y + 1 = 0$$

$$5x + 1 = 7y$$

$$7y = 5x + 1$$

$$y = \frac{5}{7}x + \frac{1}{7}$$

$$m_1 = \frac{5}{7}$$

$$m_2 = \frac{5}{7}$$

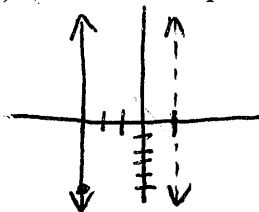
$$y - y_1 = m(x - x_1)$$

$$\text{point: } (-5, 1)$$

$$\text{slope: } m = \frac{5}{7}$$

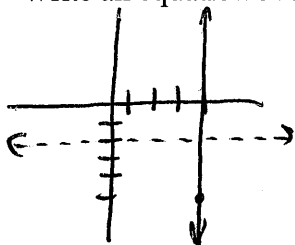
$$y - 1 = \frac{5}{7}(x + 5)$$

- 9) Write an equation of the line that passes through (-3, -5) and is parallel to the line  $x = 1$



$$x = -3$$

- 10) Write an equation of the line that passes through (4, -5) and is perpendicular to the line  $y = -2$



$$x = 4$$