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Calculus AB Name \_\_\_\_\_ ID: 1  
Precalculus Review Worksheet #2-Linear Models Date \_\_\_\_\_ Period \_\_\_\_\_

**Find the slope of the line through each pair of points.**

1)  $(-19, -19), (3, -19)$       2)  $(-15, 12), (-12, -4)$   
 $x_1, y_1, x_2, y_2$        $x_1, y_1, x_2, y_2$

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

3) through:  $(2, 1)$ , slope =  $\frac{3}{2}$       4) through:  $(1, 1)$ , slope =  $-4$   
 $x, y, m$        $x, y, m$

**Write the slope-intercept form of the equation of the line through the given point with the given slope.**

5) through:  $(1, -1)$ , slope =  $2$       6) through:  $(1, 2)$ , slope =  $0$

**Write the point-slope form of the equation of the line through the given points.**

7) through:  $(-5, -3)$  and  $(4, 4)$       8) through:  $(-2, 5)$  and  $(5, 1)$

**Write the slope-intercept form of the equation of the line through the given points.**

9) through:  $(-1, 0)$  and  $(-2, 1)$       10) through:  $(0, 5)$  and  $(2, 5)$

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

11) through:  $(-2, -1)$ , parallel to  $y = -2x + 2$       12) through:  $(4, 2)$ , parallel to  $y = \frac{3}{4}x$

13) through:  $(1, -3)$ , perp. to  $y = \frac{1}{8}x + 5$       14) through:  $(-1, -1)$ , perp. to  $y = -\frac{1}{3}x - 3$

**Write the standard form of the equation of the line through the given points.**

15) through:  $(-5, 4)$  and  $(-4, 0)$       16) through:  $(5, 3)$  and  $(-1, -4)$

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**slope**  $\frac{y_2 - y_1}{x_2 - x_1}$


①  $\frac{-19 - (-19)}{3 - (-19)} \rightarrow \frac{0}{22} \rightarrow 0$

②  $\frac{-4 - (12)}{-12 - (-15)} \rightarrow \frac{-16}{3}$

**point-slope form**  
 $(y_1 - y) = m(x_1 - x)$

③  $(y - 1) = \frac{3}{2}(x - 2)$

④  $(y - 1) = -4(x - 1)$

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Slope-intercept form

$y = mx + b$

⑤  $-1 = (2)(1) + b \rightarrow b = -3$

$y = 2x - 3$

⑥  $2 = 0(1) + b \rightarrow b = 2$

$y = 0(x) + 2 \rightarrow y = 2$

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⑦  $\frac{4 - (-3)}{4 - (-5)} \rightarrow \frac{7}{9} = m$

$(y - 4) = \frac{7}{9}(x - 4)$

⑧  $\frac{1 - 5}{5 - (-2)} \rightarrow \frac{-4}{7}$

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

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$xy$                        $m$                        $xy$                        $-$

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⑨  $\frac{1-0}{-2-(-1)} = \frac{1}{-1} = -1$

$1 = (-1)(-2) + b \rightarrow b = -1$

$y = -1x - 1$

⑩  $\frac{5-5}{2-0} \rightarrow \frac{0}{2} \rightarrow 0$

$5 = 0(-2) + b \rightarrow b = 5$

$y = 0(x) + 5 \rightarrow y = 5$

⑪ parallel lines have = slopes

$-1 = (-2)(-2) + b \rightarrow -5$

$y = -2x - 5$

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

⑫  $2 = (4)(\frac{3}{4}) + b \rightarrow b = -1$

$y = \frac{3}{4}x - 1$

$(y-2) = \frac{3}{4}(x-4)$

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perpendicular lines are opposite recipis.

(13)  $-3 = -8(1) + b$   
 $5 = b$                        $(y+3) = -8(x-1)$   
 $y = -8x + 5$

(14)  $-1 = 3(-1) + b$   
 $2 = b$                        $(y+1) = 3(x+1)$   
 $y = 3x + 2$

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(15)  $\frac{0-4}{-4-(-5)} \rightarrow \frac{-4}{1} \rightarrow -4$   
 $(y-4) = -4[x-(-5)]$   
 $y-4 = -4(x+5)$   
 $y-4 = -4x-20$   
 $4x + y + 16 = 0$

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$\frac{-4-3}{-1-5} \rightarrow \frac{-7}{-6} \rightarrow \frac{7}{6}$

$(y-3) = \frac{7}{6}(x-5)$

$6(y-3) = 7(x-5)$

$6y - 18 = 7x - 35$

$-7x + 6y + 17 = 0$

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