

find slope,  $x_i$  and  $y_i$

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page 19 1-19 odd, 33

1)  $y = 3x + 12$

$m = 3$ ,  $y$  intercept = 12

$x$  intercept = -4

13) horizontal,  $(0, -2)$

$y + 2 = 0(x - 0)$   $y = -2$

3)  $4x + 9y = 3$

$y = -\frac{4}{9}x + \frac{1}{3}$

$m = -\frac{4}{9}$   $y$  intercept =  $\frac{1}{3}$  ✓

$x$  intercept =  $\frac{3}{4}$  ✓

$0 = -\frac{4}{9}x + \frac{1}{3} - \frac{1}{3} = -\frac{4}{9}x$

15) parallel  $y = 3x - 4$   $(1, 1)$

$y - 1 = 3(x - 1)$

$y - 1 = 3x - 3$   $y = 3x - 2$

5)  $y = 3x + 2$   $m = 3$

17) perpendicular to  $3x + 5y = 9$

passes through  $(2, 3)$

$3x + 5y = 9$   $5y = -3x + 9$   $y = -\frac{3}{5}x + \frac{9}{5}$

$y + 3 = \frac{5}{3}(x - 2)$   $y - 3 = \frac{5}{3}x - \frac{10}{3}$

$y = \frac{5}{3}x - \frac{1}{3}$   $m_2 = \frac{1}{m_1}$

7)  $3x + 4y = 12$

$y = -\frac{3}{4}x + 3$   $m = -\frac{3}{4}$

19) horizontal, passes through  $(8, 4)$

$y = 4 = 0(x - 8)$   $y = 4$

find equation

a) slope = 3  $y = 8$   $y = mx + b$

$y = 3x + 8$

Find the roots

33) a)  $4x^2 - 3x - 1$

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

ii) slope 3,  $(7, 9)$

$y - 9 = 3(x - 7)$

$y - 9 = 3x - 21$

$y = 3x - 12$  ✓

b)  $x^2 - 2x - 1$

$\frac{-(-2) \pm \sqrt{2^2 - 4(1)(-1)}}{2(1)}$

$\frac{2 \pm \sqrt{4 + 4}}{2}$   $\frac{2 \pm 2\sqrt{2}}{2}$

$1 \pm \sqrt{2}$  ✓