Practice
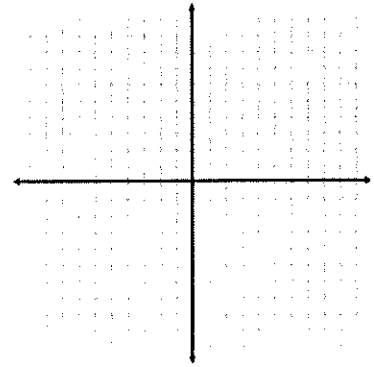**Equations of Lines: x- and y-intercepts**

Answer these problems, then check your answers using the key on the next page. If you missed something, look at the solutions after the answer key, and if you still don't understand, watch the review video again.

#1) Find the x-intercept and y-intercept, and graph the line using these intercepts: $y = 2x - 4$

<u>x-intercept</u>   <u>y-intercept</u>
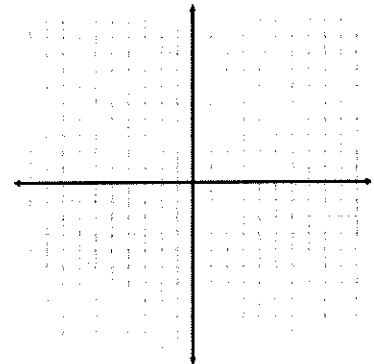
#2) Find the x-intercept and y-intercept, and graph the line using these intercepts: $3x + 4y = 12$

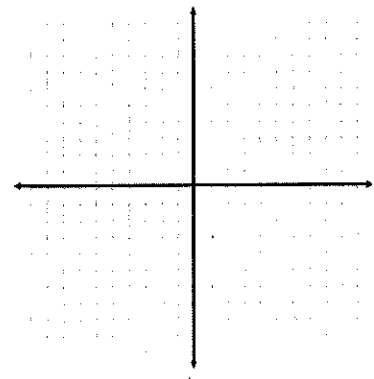<u>x-intercept</u>   <u>y-intercept</u>

#3) Find the x-intercept and y-intercept, and graph the line using these intercepts: $7x + 3y - 21 = 0$

<u>x-intercept</u>   <u>y-intercept</u>
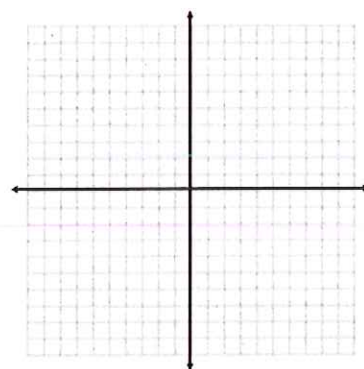
#4) Find the x-intercept and y-intercept, and graph the line using these intercepts: $6y - 5x + 60 = 0$

    x-intercept   y-intercept
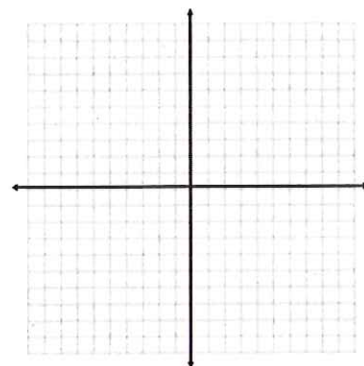
#5) Find the x-intercept and y-intercept, and graph the line using these intercepts: $y = -3$

    x-intercept   y-intercept
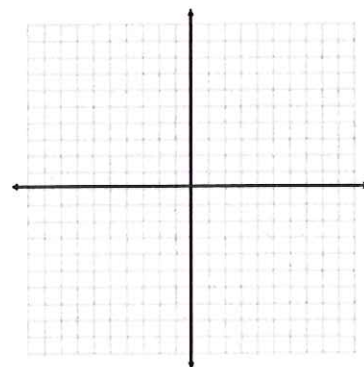
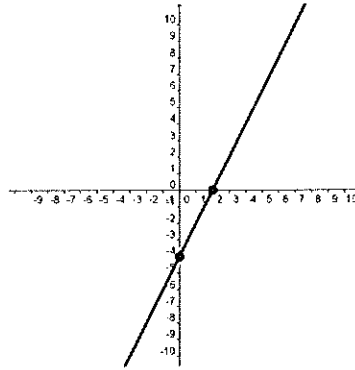#6) Find the x-intercept and y-intercept, and graph the line using these intercepts: $x = 6$
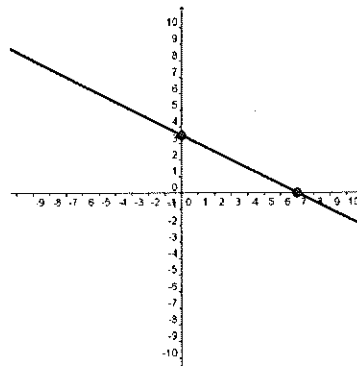
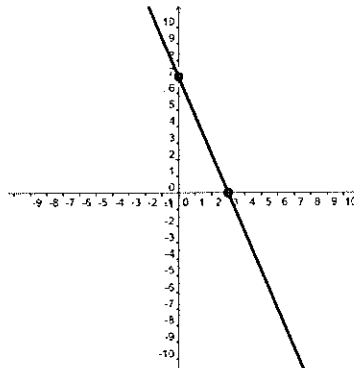   x-intercept   y-intercept

Answers:

#1) x-$intercept: (2, 0)$ y-$intercept: (0, -4)$

#2) x-$intercept: (7, 0)$ y-$intercept: \left(0, \dfrac{7}{2}\right)$
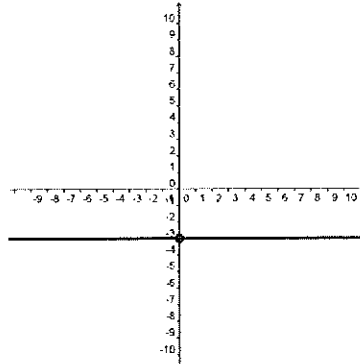
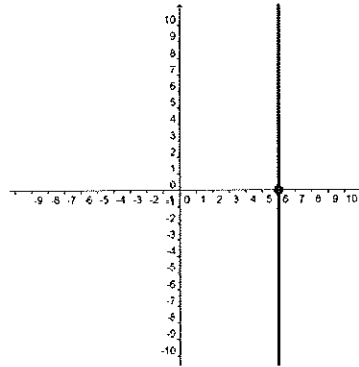#3) x-$intercept: (3, 0)$ y-$intercept: (0, 7)$

#4) x-$intercept: (12, 0)$ y-$intercept: (0, -10)$
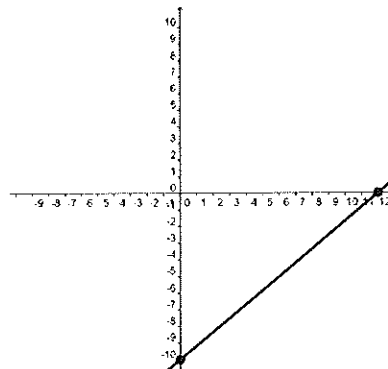
#5) *No x - intercept,   y - intercept* $:(0,-3)$
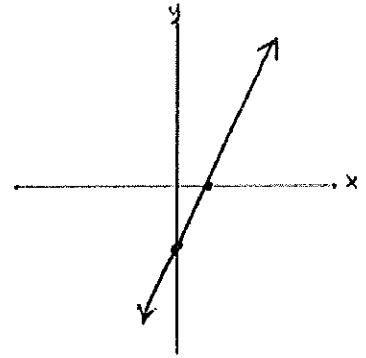
#6) *x - intercept* $:(6,0)$ *No y - intercept*

Solutions:

#1) Find the x-intercept and y-intercept, and graph the line using these intercepts: $y = 2x - 4$

x-intercept	y-intercept
(when $y=0$)	(when $x=0$)
$y = 2x - 4$	$y = 2x - 4$
$(0) = 2x - 4$	$y = 2(0) - 4$
$+4 \qquad +4$	$y = -4$
$\dfrac{4}{2} = \dfrac{2x}{2}$	$\boxed{(0, -4)}$
$2 = x$	
$\boxed{(2, 0)}$	

#2) Find the x-intercept and y-intercept, and graph the line using these intercepts: $x + 2y = 7$

x-intercept	y-intercept
(when $y=0$)	(when $x=0$)
$x + 2y = 7$	$x + 2y = 7$
$x + 2(0) = 7$	$(0) + 2y = 7$
$x = 7$	$\dfrac{2y}{2} = \dfrac{7}{2}$
$\boxed{(7, 0)}$	$y = \dfrac{7}{2} \ (= 3.5)$
	$\boxed{\left(0, \dfrac{7}{2}\right)}$
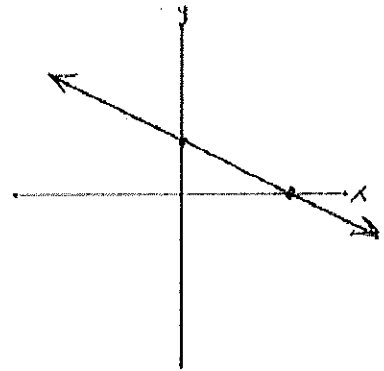
#3) Find the x-intercept and y-intercept, and graph the line using these intercepts: $7x + 3y - 21 = 0$ $\qquad 7x + 3y = 21$
$\qquad\qquad\qquad +21 \quad +21$

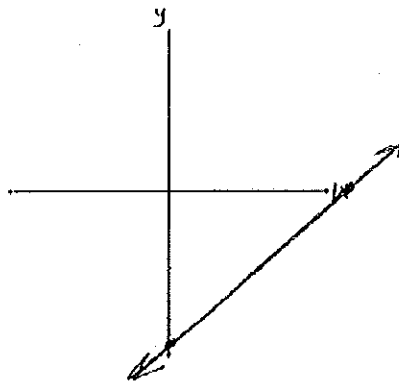| x-intercept	y-intercept
(when $y=0$)	(when $x=0$)
$7x + 3y = 21$	$7x + 3y = 21$
$7x + 3(0) = 21$	$7(0) + 3y = 21$
$\dfrac{7x}{7} = \dfrac{21}{7}$	$\dfrac{3y}{3} = \dfrac{21}{3}$
$x = 3$	$y = 7$
$\boxed{(3, 0)}$	$\boxed{(0, 7)}$

#4) Find the x-intercept and y-intercept, and graph the line using these intercepts: $6y - 5x + 60 = 0$ $6y - 5x = -60$
$$\quad -60 \quad -60$$

x-intercept
(when $y=0$)
$6y - 5x = -60$
$6(0) - 5x = -60$
$$\frac{-5x}{-5} = \frac{-60}{-5}$$
$x = 12$
$\boxed{(12, 0)}$

y-intercept
(when $x=0$)
$6y - 5x = -60$
$6y - 5(0) = -60$
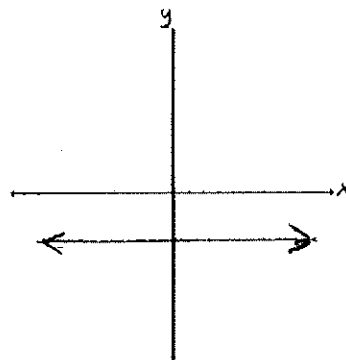$$\frac{6y}{6} = \frac{-60}{6}$$
$y = -10$
$\boxed{(0, -10)}$

#5) Find the x-intercept and y-intercept, and graph the line using these intercepts: $y = -3$

x-intercept
(when $y=0$)
but $y = -3$
y can never be zero
so
$\boxed{\text{no x-intercept}}$

y-intercept
(when $x=0$)
$y = -3$
y is always -3
so
$\boxed{(0, -3)}$

#6) Find the x-intercept and y-intercept, and graph the line using these intercepts: $x = 6$

x-intercept
(when $y=0$)
$x = 6$
x is always 6
so
$\boxed{(6, 0)}$

y-intercept
(when $x=0$)
but $x = 6$
x can never be zero
so
$\boxed{\text{no y-intercept}}$