KEY

ID: A

PRACTICE TEST: Chapter 7 - Linear Equations
Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 DIF: A OBJ: Section 7.1
   NAT: RF6 TOP: Slope-Intercept Form KEY: y-intercept | equation of a line
2. ANS: C PTS: 1 DIF: A OBJ: Section 7.1
   NAT: RF7 TOP: Slope-Intercept Form
   KEY: equation of a line | slope | y-intercept
3. ANS: D PTS: 1 DIF: B OBJ: Section 7.2
   NAT: RF6 TOP: General Form KEY: general form | equation of a line
4. ANS: C PTS: 1 DIF: A OBJ: Section 7.1
   NAT: RF5 TOP: Slope-Intercept Form KEY: slope | y-intercept | graph
5. ANS: D PTS: 1 DIF: B OBJ: Section 7.2
   NAT: RF6 TOP: General Form
   KEY: general form | y-intercept | x-intercept | problem solving
6. ANS: D PTS: 1 DIF: A OBJ: Section 7.2
   NAT: RF6 TOP: General Form
   KEY: slope-intercept form | equation of a line
7. ANS: D

Rewrite the equation $12x - 9y + 2 = 0$ in slope-intercept form:

$$12x - 9y + 2 = 0$$
$$12x - 9y + 2 + 9y = 0 + 9y$$
$$12x + 2 = 9y$$
$$\frac{12x}{9} + \frac{2}{9} = \frac{9y}{9}$$
$$\frac{4}{3}x + \frac{2}{9} = y$$
$$y = \frac{4}{3}x + \frac{2}{9}$$

The slope is $\frac{4}{3}$ and the y-intercept is $\frac{2}{9}$.

PTS: 1 DIF: C OBJ: Section 7.2 NAT: RF6
TOP: General Form KEY: slope-intercept form | slope | y-intercept

8. ANS: C PTS: 1 DIF: B OBJ: Section 7.3
   NAT: RF7 TOP: Slope-Point Form
   KEY: equation of a line given the slope and a point | slope-point form
9. ANS: A PTS: 1 DIF: B OBJ: Section 7.3
   NAT: RF7 TOP: Slope-Point Form
   KEY: equation of a line given the slope and a point

13. ANS: B

The slope of the line must be the negative reciprocal of -3, or $\frac{1}{3}$:

$$y = mx + b$$
$$-1 = \left(\frac{1}{3}\right)(3) + b$$
$$-1 = 1 + b$$
$$-1 - 1 = 1 + b - 1$$
$$-2 = b$$

The equation of the line is $y = \frac{1}{3}x - 2$.

PTS: 1 DIF: B OBJ: Section 7.4 NAT: RF7
TOP: Parallel and Perpendicular Lines
KEY: perpendicular lines | equation of a line given the slope and a point

14. ANS: B

The line must have slope 2. Identify the x-intercept of $3x - 4y = 12$.
Substitute $y = 0$:

$$3x - 4y = 12$$
$$3x - 4(0) = 12$$
$$3x = 12$$
$$\frac{3x}{3} = \frac{12}{3}$$
$$x = 4$$

The point $(4, 0)$ is on the line. Substitute the slope and this point into $y = mx + b$:

$$y = mx + b$$
$$0 = (2)(4) + b$$
$$0 = 8 + b$$
$$0 - 8 = 8 + b - 8$$
$$-8 = b$$

The equation of the line is $y = 2x - 8$.

PTS: 1 DIF: C OBJ: Section 7.4 NAT: RF7
TOP: Parallel and Perpendicular Lines
KEY: parallel lines | slope | equation of a line given the slope and a point

SHORT ANSWER

1. ANS:
Substitute the coordinates of the intercepts, (5, 0) and (0, –3), into the slope formula:

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

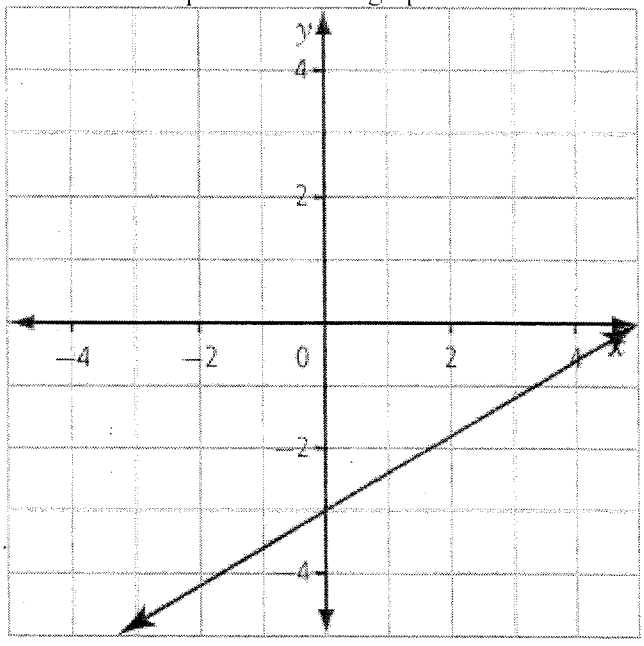
$$m = \frac{-3 - 0}{0 - 5}$$

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

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

The slope is $\frac{3}{5}$.

Use the intercepts to draw the graph:



PTS: 1 DIF: B OBJ: Section 7.3 NAT: RF3 | RF6
TOP: Slope-Point Form
KEY: equation of a line given two points | graph | x-intercept | y-intercept

4. ANS:

a) E(–5, –2), F(5, –6)

b) rise = –6 – (–2)
= –4
The rise is –4.

c) run = 5 – (–5)
= 10
The run is 10.

d) $m = \frac{\text{rise}}{\text{run}}$

$m = \frac{-4}{10}$

$m = -\frac{2}{5}$

The slope is $-\frac{2}{5}$.

e) On the graph, the line with E and F crosses the y-axis at –4, so the y-intercept is –4.

f) $y = mx + b$

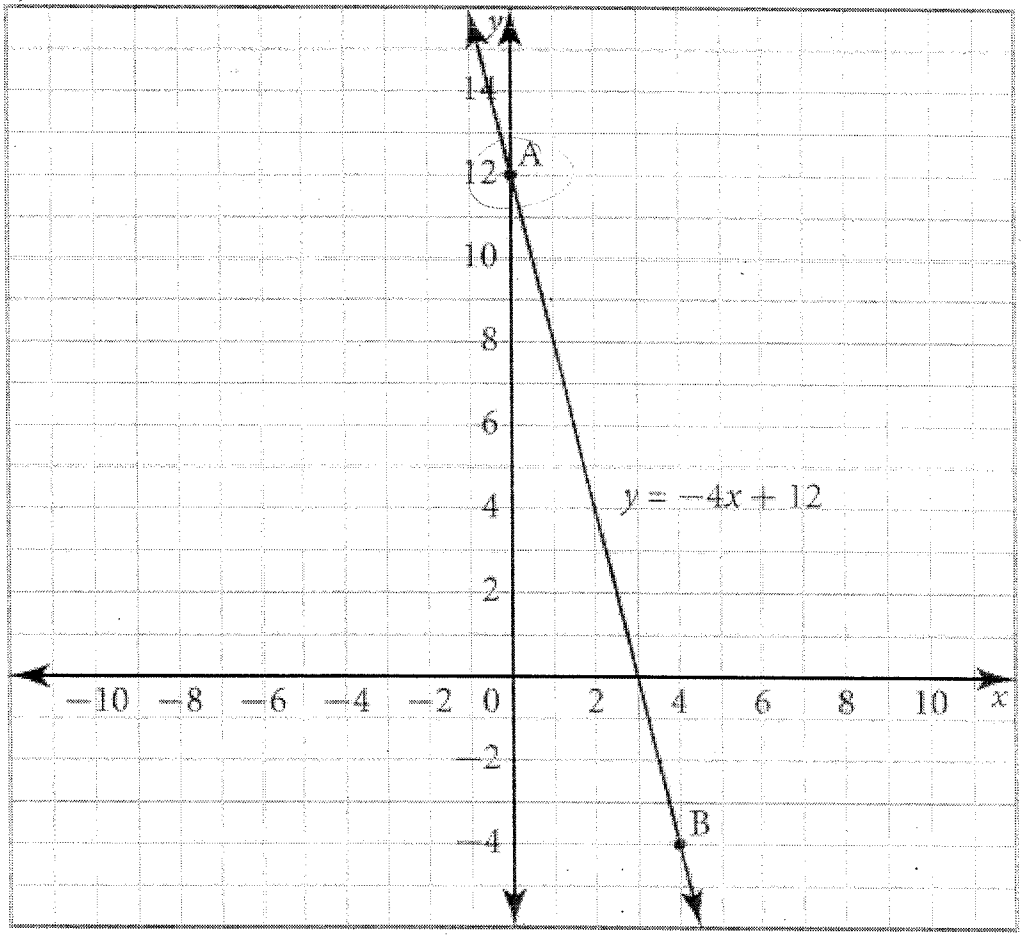
$y = -\frac{2}{5}x - 4$

The equation of the line is $y = -\frac{2}{5}x - 4$.

PTS: 1 DIF: C OBJ: Section 6.5 NAT: RF3
TOP: Slope KEY: rise | run | slope | intercept | equation of a line

2. ANS:

a)



b) $m = \dfrac{\text{rise}}{\text{run}}$

$m = \dfrac{-4-12}{4-0}$

$m = \dfrac{-16}{4}$

$m = -4$

c)