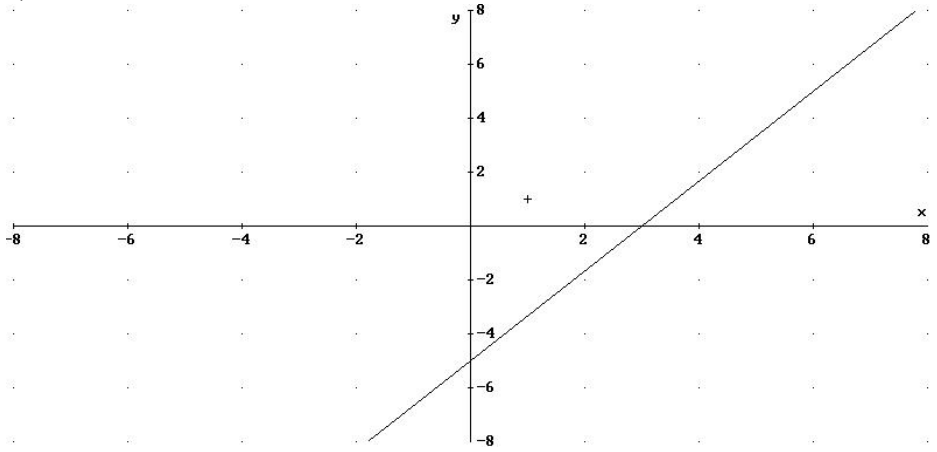
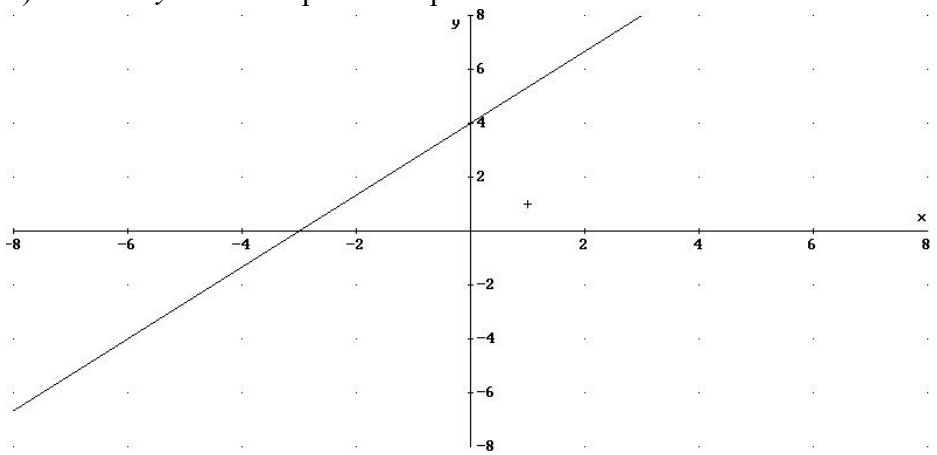
Linear Functions

1. Graph each of the following using the indicated method (using table of values, slope intercept form, or x and y intercept form)

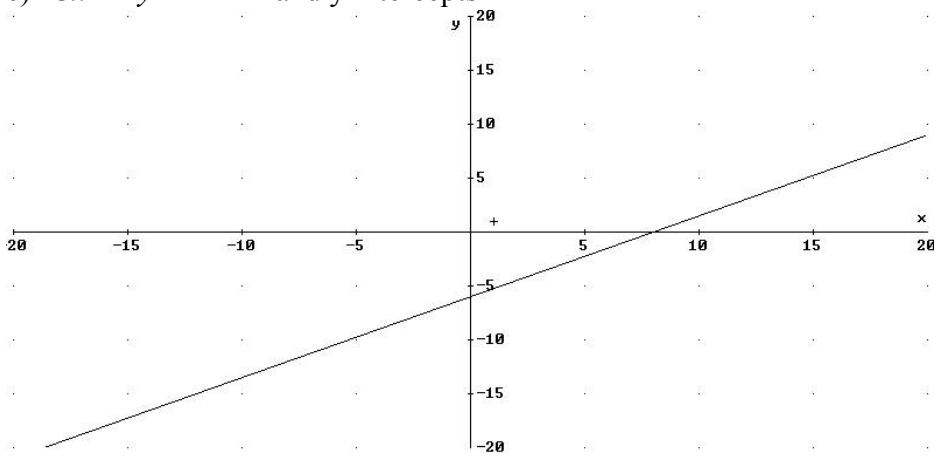
   a) $5x - 3y = 15$ - table of values



   b) $-4x + 3y = 12$ - slope-intercept



   c) $3x - 4y = 24$ - x and y intercepts



2. Given $-7x + 2y = 11$ determine:

a) Slope $m = \frac{7}{2}$

b) y-intercept $b = \frac{11}{2}$

c) x-intercept $x = -\frac{11}{7}$

3. Given the points (-5, 3) and (7, -6) determine:

a) slope of the line segment $m = -\frac{9}{12} = -\frac{3}{4}$

b) midpoint of the line segment $M\left(\frac{2}{2}, -\frac{3}{2}\right) = \left(1, -\frac{3}{2}\right)$

c) distance between the two points $d = \sqrt{225} = 15$

d) the slope of a line parallel to the given line segment $m = -\frac{3}{4}$

e) the slope of a line perpendicular to the line segment $m = \frac{4}{3}$

4. Determine the equation given:

a) $m = -2/7$ and $b = -4$ $7y = -2x - 28$

b) $m = -3/5$ and $(0, 5)$ $5y = -3x + 25$

c) $m = 4/9$ and $(-1, 5)$ $9y = 4x + 49$

d) $(4, -7)$ and $(-3, 9)$ $7y = -16x + 15$

e) through (-3, 7) and parallel to the equation $5x - 3y = 7$ $m = \frac{5}{3}, \quad 3y = 5x + 36$

f) through (6, -5) and perpendicular to the line segment defined by the points (-1, 5) and (-5, 8) $m_1 = -\frac{3}{4}, \quad m_2 = \frac{4}{3}, \quad 3y = 4x - 39$

g) perpendicular bisector of the line segment defined by the points (-7, 12) and (5, -4) $m_1 = -\frac{16}{12} = -\frac{4}{3}, \quad m_2 = \frac{3}{4}, \quad M(-1, 4), \quad 4y = 3x = 19$

h) through (-6, 2) and parallel to x-axis $y = 2$

i) through (-2, 9) and perpendicular to x-axis $x = -2$