

## Analytical Geometry Test Review

1. Identify the slope and y-intercept of  $y = -7x - 19$ .

$$m = -7$$
$$b = -19$$

2. Order the lines from steepest to flattest.

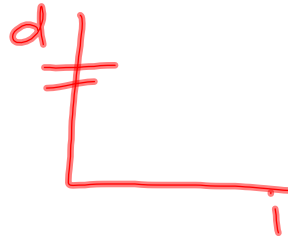
$$y = -\frac{1}{5}x + 8 \quad \textcircled{3}$$

$$y = -6x - \frac{5}{8} \quad \textcircled{1}$$

$$y = -2x + 4 \quad \textcircled{2}$$

3. A catering company charges \$550 for 20 guests and \$775 for 35 guests. What is the cost per person?

$$\begin{array}{l} x_1 \quad y_1 \\ (20, 550) \\ x_2 \quad y_2 \\ (35, 775) \end{array}$$

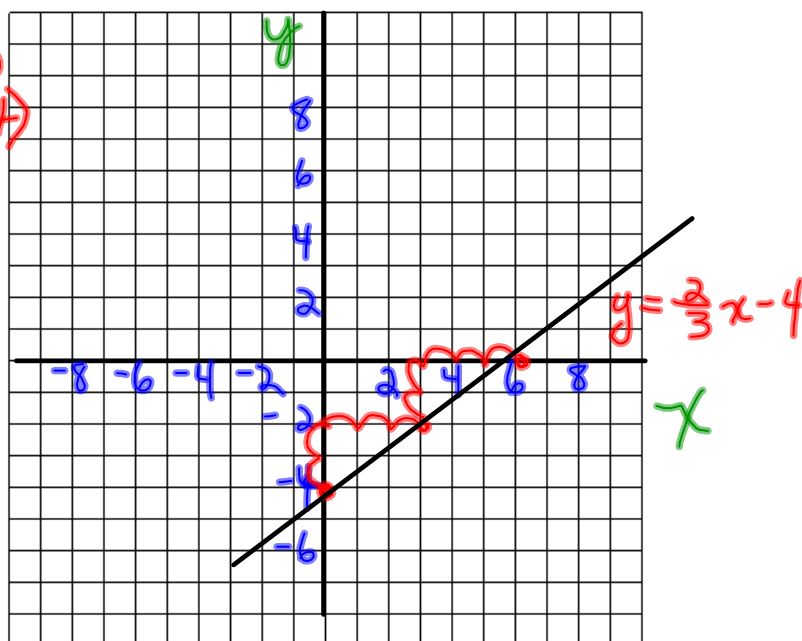


$$\begin{aligned} m &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{775 - 550}{35 - 20} \\ &= \frac{225}{15} \\ &= \$15 \end{aligned}$$

∴ the cost per person is \$15.

4. Use the slope and y-intercept to graph  $y = \frac{2}{3}x - 4$

$$\begin{aligned} m &= \frac{2}{3} \text{ (up)} \\ &\quad \text{(right)} \\ b &= -4 \end{aligned}$$



5. Determine the equation of a line with coordinates (1, 2) and (7, -3).

1. Calculate the slope.

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

$$= \frac{-3 - 2}{7 - 1}$$

$$= \frac{-5}{6}$$

2. Solve for "b". (7, -3)

$$-3 = -\frac{5}{6}(1) + b$$

$$-3 = -\frac{35}{6} + b$$

$$-3 + \frac{35}{6} = b$$

$$-\frac{18}{6} + \frac{35}{6} = b$$

$$\frac{17}{6} = b$$

3.  $y = -\frac{5}{6}x + \frac{17}{6}$

6. Determine the equation of a line perpendicular to  $4x - 3y - 2 = 0$  with the same y-intercept as the line defined by  $3x + 4y = -12$ .

Slope

$$4x - 3y - 2 = 0$$

You need to isolate for "y".

$$-3y = -4x + 2$$

$$y = \frac{4}{3}x - \frac{2}{3} \quad m = -\frac{3}{4}$$

y-intercept

$$3x + 4y = -12$$

You need to isolate for "y".

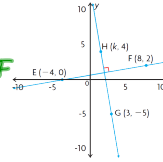
$$4y = -12 - 3x$$

$$y = -3 - \frac{3}{4}x \quad b = -3$$

Put "m" + "b" into the eqn.

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

7. Determine the value of k.



1. Calculate the slope of EF

$$E(-4, 0) \quad F(8, 2)$$

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

$$= \frac{2 - 0}{8 - (-4)}$$

$$= \frac{2}{12}$$

$$= \frac{1}{6}$$

2. Determine slope of GH

$$m_{GH} = -\frac{6}{1}$$

3. Solve for "k" by plugging into the slope formula.  $(k, 4)$   $(3, -5)$

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

$$\frac{-6}{1} = \frac{-5 - 4}{3 - k}$$

$$-6(3 - k) = 1(-5 - 4)$$

$$-18 + 6k = -5 - 4$$

$$-18 + 6k = -9$$

$$6k = -9 + 18$$

$$6k = 9 \div 3$$

$$k = \frac{3}{2}$$

$$k = 1.5$$

Complete the following review questions:

p. 309 # 1 - 3ac, 4a, 14c.

p. 292 #8ad, 9a.