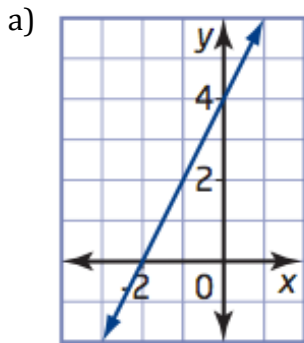# 6.3 Graphing Using Intercepts Worksheet
MPM1D
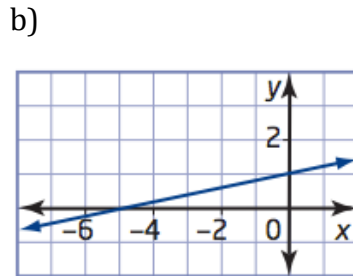Jensen

1. Identify the x- and y-intercepts of each graph, if they exist.
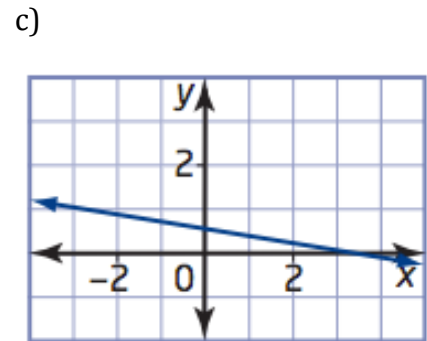
a)

x-intercept:

y-intercept:
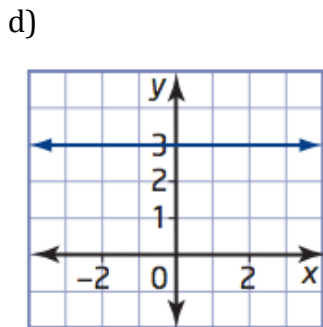
b)

x-intercept:

y-intercept:

c)

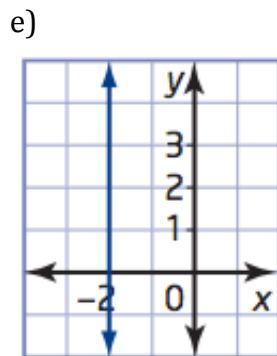x-intercept:

y-intercept:

d)

x-intercept:

y-intercept:

e)

x-intercept:

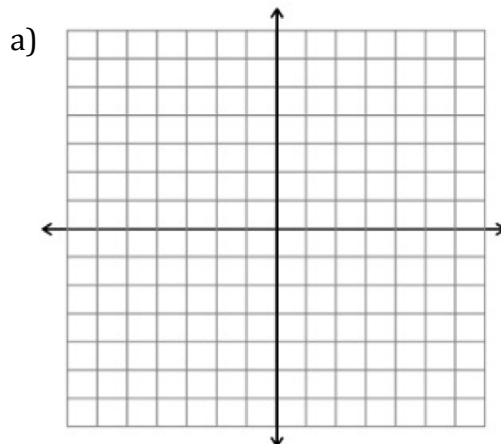y-intercept:

2. For each part, plot the intercepts and graph the line

	x-intercept	y-intercept
a)	2	5
b)	-3	3
c)	1.5	-4
d)	none	6
e)	4	none

a)

b)

c)

d)

e)
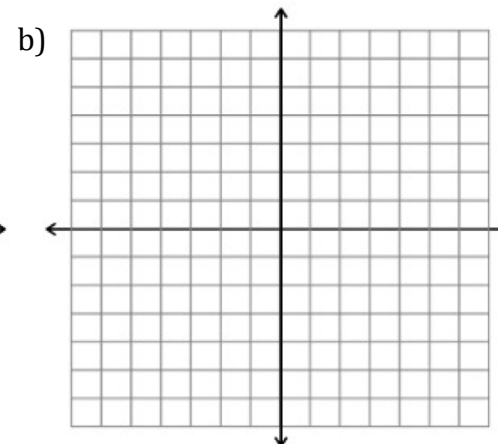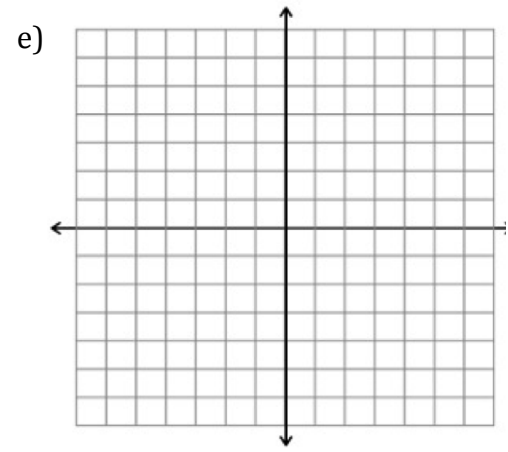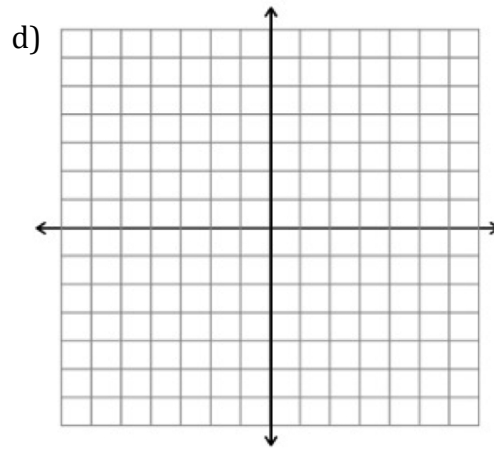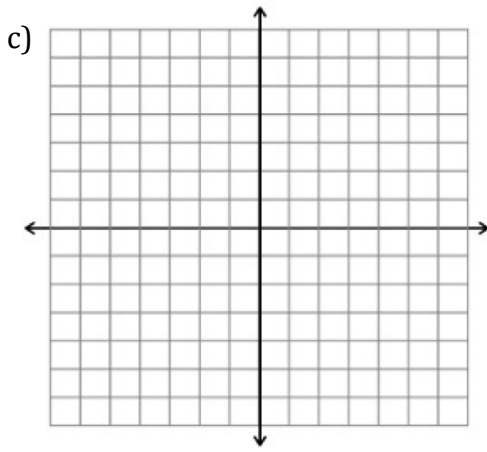
3. Determine the x- and y-intercepts and use them to graph the line

a) $2x + 3y = 12$

b) $3x + y = 6$

c) $x - 4y = 4$

x-intercept:_____

y-intercept:_____

x-intercept:_____

y-intercept:_____

x-intercept:_____

y-intercept:_____

d) $-5x + 2y = 10$

e) $4x = 12$

g) $4x + 2y = 6$

x-intercept:_____

y-intercept:_____

x-intercept:_____

y-intercept:_____

x-intercept:_____
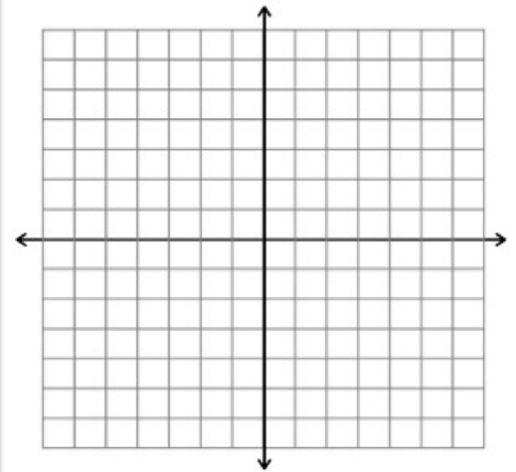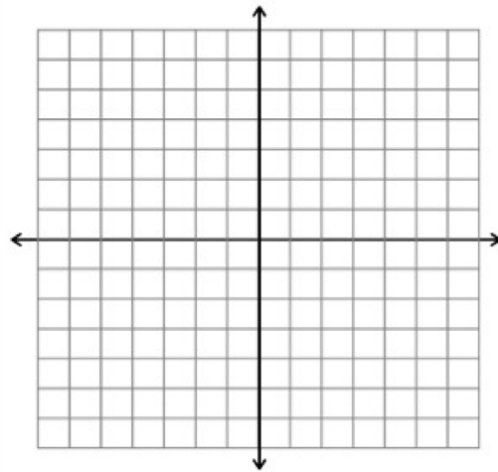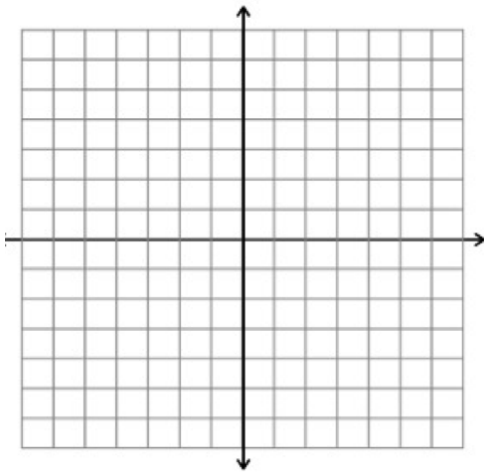
y-intercept:_____

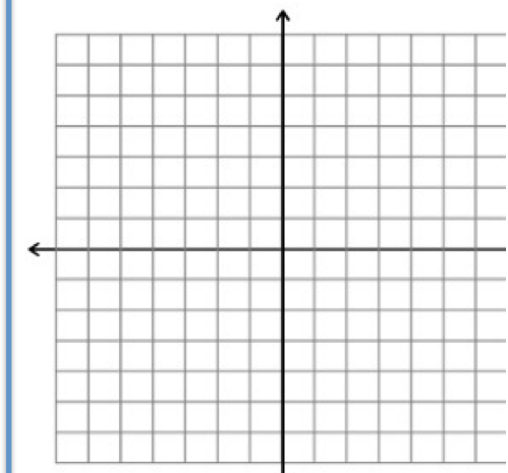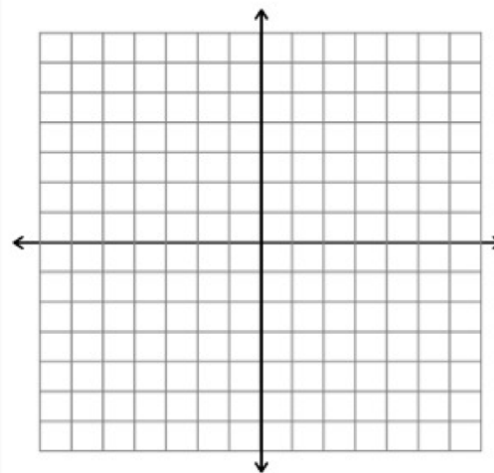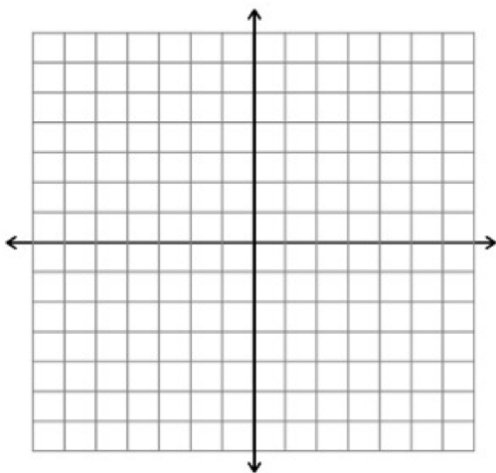4. Draw a graph and determine the slope of each line using the rise and run from the graph.

	x-intercept	y-intercept
a)	5	-5
b)	-2	3
c)	3	none
d)	2.5	-4

a)

Slope: _____

b)

Slope: _____

c)

Slope: _____

d)
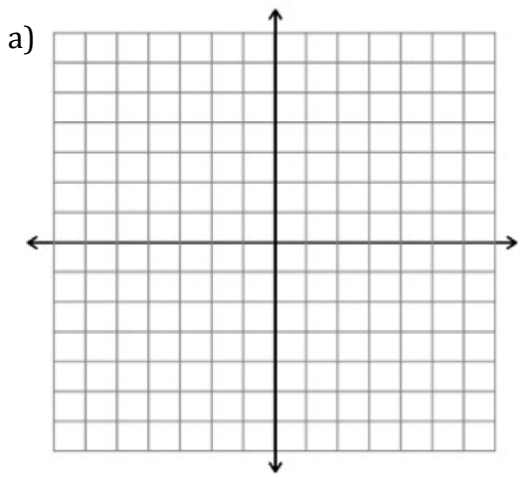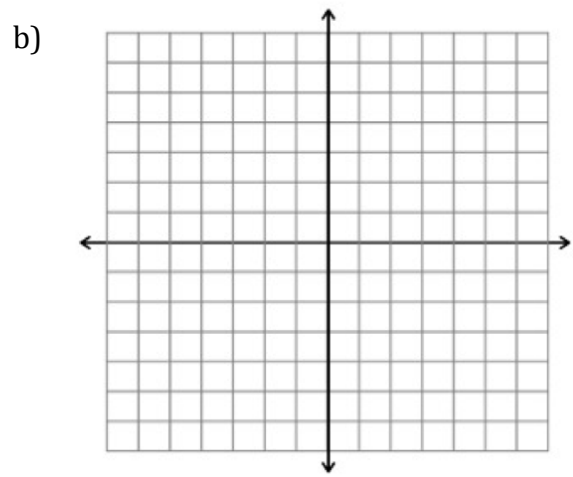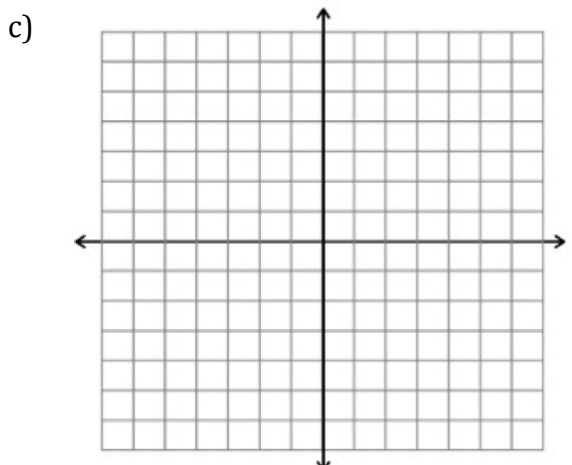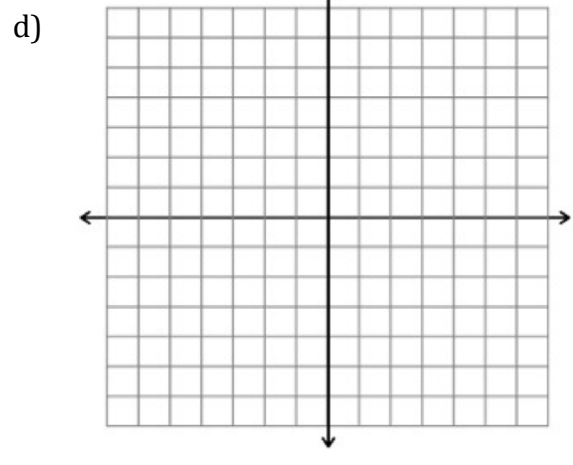
Slope: _____

5. Find the slope of each line using the slope formula

a)

	x-intercept	y-intercept
a)	6	5
b)	3	-4
c)	-6	3
d)	none	$\frac{1}{2}$

Slope: _____

b)   c)   d)

Slope: _____   Slope: _____   Slope: _____

6. The distance time graph shows Carlo's motion in front of a sensor.

a) Identify the d-intercept and explain what it means

b) Identify the t-intercept and explain what it means
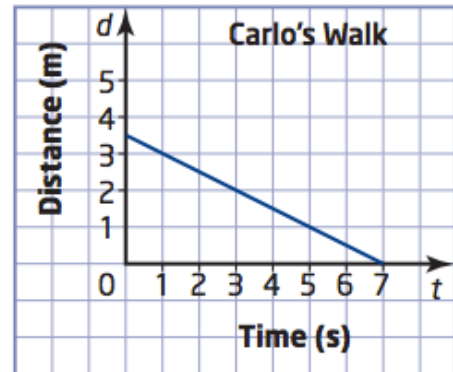
c) Describe the instructions you would give someone walking in front of a sensor to reproduce this graph

7. Consider the line $x + 4y = -4$. To graph this line, you could:

• determine the x- and y-intercepts
• create a table of values
• use the equation to find the coordinates of three points on the line

Which method of graphing do you prefer in this case? Explain.

8. A candle burns at a constant rate of 2.5 cm/h. The candle is 15 cm tall when it is first lit.

a) Set up a graph of length, l, in centimeters, versus time, t, in hours, and plot the l-intercept.

b) Should the slope of this linear relation be positive or negative? Explain.

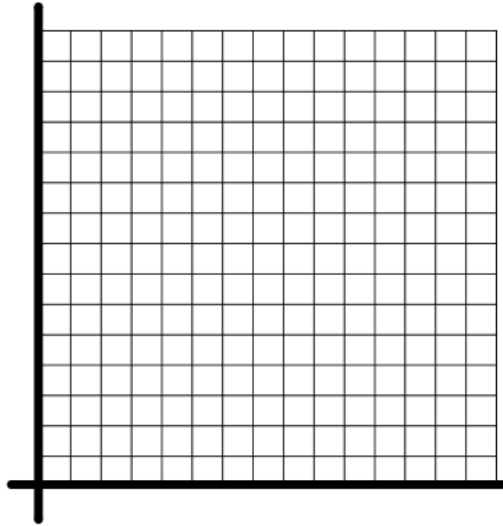c) Graph the line

d) What is the length of the candle after 3 hours? 4.5 hours?

e) Identify the t-intercept and explain what it means.
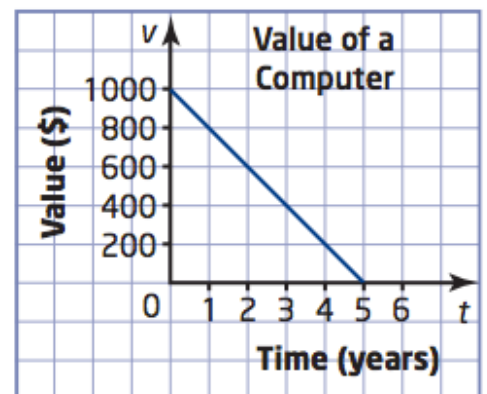
f) Explain why this graph has no meaning below the t-intercept

11. When you buy a computer, its value depreciates (becomes less) over time. The graph illustrates the value of a computer from the time it was bought.

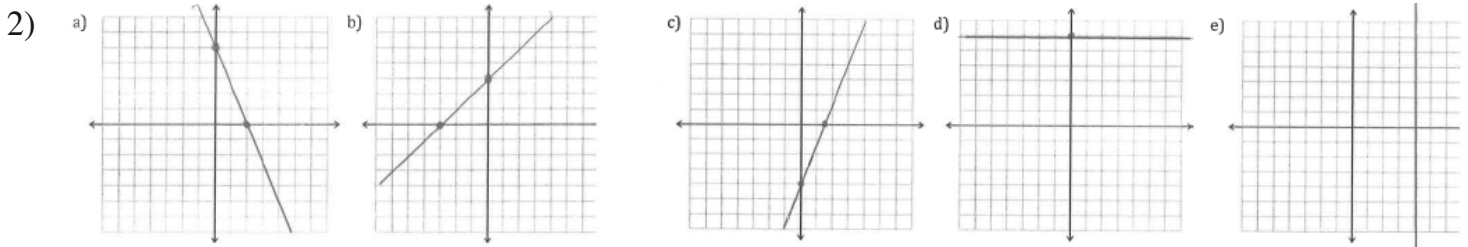a) How much did the computer originally cost?

b) After what period of time does the computer no longer have value?

c) What is the slope and what does it mean?

Answers

1) a) x-int $(-2, 0)$ and y-int $(0, 4)$ b) x-int $(-5, 0)$ and y-int $(0, 1)$ c) x-int $(2.5, 0)$ and y-int $(0, 0.5)$

   d) no x-int and y-int $(0, 3)$ e) x-int $(-2, 0)$ and no y-int

2)   a)   b)   c)   d)   e)

3) a) x-int $(6, 0)$ and y-int $(0, 4)$ b) x-int $(2, 0)$ and y-int $(0, 6)$ c) x-int $(4, 0)$ and y-int $(0, -1)$

   d) x-int $(-2, 0)$ and y-int $(0, 5)$ e) x-int $(3, 0)$ and no y-int   f) x-int $(1.5, 0)$ and y-int $(0, 3)$
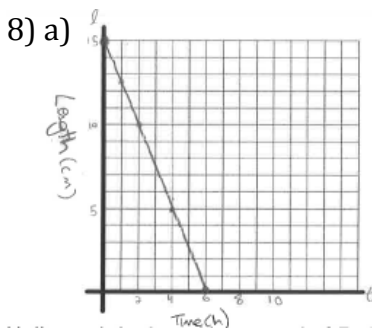
4) a) m=1   b) $m = \frac{3}{2}$ c) undefined   d) $m = \frac{8}{5}$

5) a) $m = -\frac{5}{6}$ b) $m = \frac{4}{3}$ c) $m = \frac{1}{2}$ d) $m = 0$

6) a) 3.5; he started 3.5 m away from the sensor   b) 7; it took Carlo 7 seconds to reach the sensor

   c) Walk at a constant rate of 0.5 m/s towards the sensor

7) x- and y-intercepts because it is not in slope y-intercept form.

8) a)

b) negative because the length will decrease with time

d) after 3 hours the length is 7.5 cm; after 4.5 hours the length is 3.75 cm

e) 6; this is how long it takes for the entire candle to burn

f) The candle is gone

11) a) $1000   b) 5 years   c) -200; the value decreases by $200/year