

MATEMÁTICAS -- 3º ESO -- IES EDUARDO JANEIRO

Worksheet 6 - Linear functions

16-4-2015

Name:

Estos ejercicios se entregarán el día del examen sobre una puntuación máxima de 1 punto. Si se entregan pasada dicha fecha, la puntuación máxima será de 0.5 puntos.

1. Determine the slope and y-intercept of each linear function:

a) $y = 4x + 2$

c) $y = -x + 6$

e) $y = x - 5$

b) $y = -3x - 1$

d) $y = 7x$

f) $y = 12$

2. Graph these linear functions:

a) $y = -5x$

b) $y = 3x - 7$

c) $y = -\frac{2}{5}x + 2$

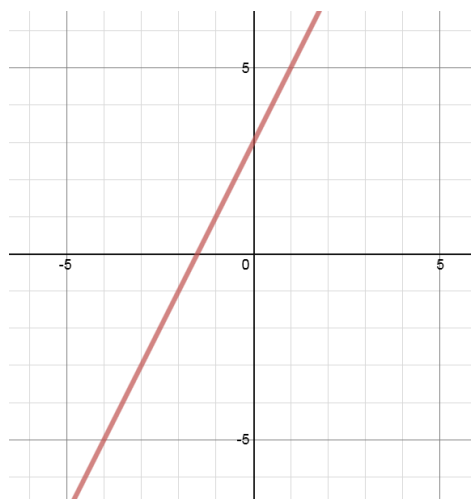
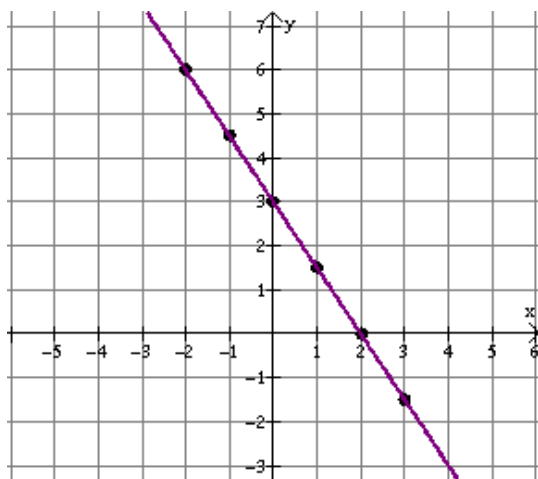
3. Graph these linear functions that are expressed in its standard form:

a) $-x + 7y = 16$

b) $3x + 2y = 5$

c) $x + y = 0$

4. Find the equations of these straight lines:



5. Find the equation for a line containing the given point and having the given slope.

a) $P(4, -3)$, $m = -1$

c) $Q(-5, -6)$, $m = 2$

b) $R(3, 5)$, $m = -2$

d) $S(-7, 2)$, $m = 3$

6. Find the equation for a line that passes through the given points:

a) $P(0, 8)$, $Q(-1, 10)$

c) $P(-6, 8)$, $Q(4, 8)$

b) $P(4, 5)$, $Q(-3, 8)$

d) $P(0, 9)$, $Q(2, 0)$

7. Find the equations of each these lines:

- a) Passes through (1,-3) and (9,-2).
- b) Passes through (0,5) and its slope is $-\frac{2}{5}$.
- c) Passes through (-3,1) and its y-intercept is 5.
- d) Passes through (7,2) and is parallel to $y = -5x + 1$

8. Is the point (3, 5) in the line $y = 7x - 16$?

9. Calculate c so the line $y = -2x + c$ passes through the point P(-2,3).

10. A salesperson receives a base salary of 35000 € and a commission of 10% of the total sales for the year.

- a) Write a linear model that shows the salesperson's total income based on total sales of x euros.
- b) If the salesperson sells 250000€ worth of merchandise, what is her total income for the year, including her base salary?

11. Mary is tracking the progress of her plant's growth. Today the plant is 5 cm high. The plant grows 1.5 cm per day.

- a) Write a linear model that represents the height of the plant after x days.
- b) What will the height of the plant be after 20 days?

12. When digging into the earth, the temperature rises according to the following linear equation $t = 15 + 0.01h$, where t is the increase in temperature in degrees and h is the depth in meters.

- a) What will the temperature be at 100 m depth?
- b) Based on this equation, at what depth would there be a temperature of 100 °C?

13. A company can make a total of 20 solar heater for 13900€, while 10 heaters cost 7500€.

- a) Write a linear equation for the total cost as a function of the number of heaters produced.
- b) What is the cost if 25 heaters are produced?

14. The sales of a small company were 27000€ in its first year and 63000 in its fourth year.

- a) Write a linear equation for the sales as a function of the year.
- b) What will the sales be in the sixth year?
- c) How long before they reach 100000€ in sales?

15. A phone company charges a flat rate of 25€ per month. In addition they charge 0.05 € for each minute of service.

- a) Write a linear equation for the monthly charge based upon the number of minutes of service each month.
- b) Interpret the slope and the y-intercept.
- c) What will be the charge for 100 minutes of service?
- d) You can afford a 55€ phone bill each month. How long can you afford to talk on the phone each month?