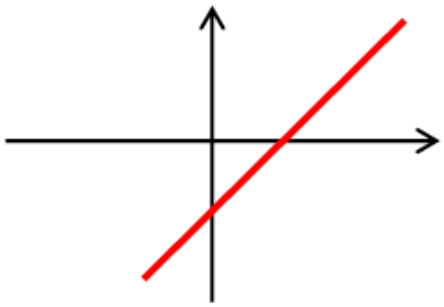
Graphs of Functions - Section Test

1) The diagram shows a sketch of one of the following lines. Which one?



(a) $y - x + 1 = 0$
(b) $y + x = 1$
(c) $y = x + 1$
(d) $y + x + 1 = 0$

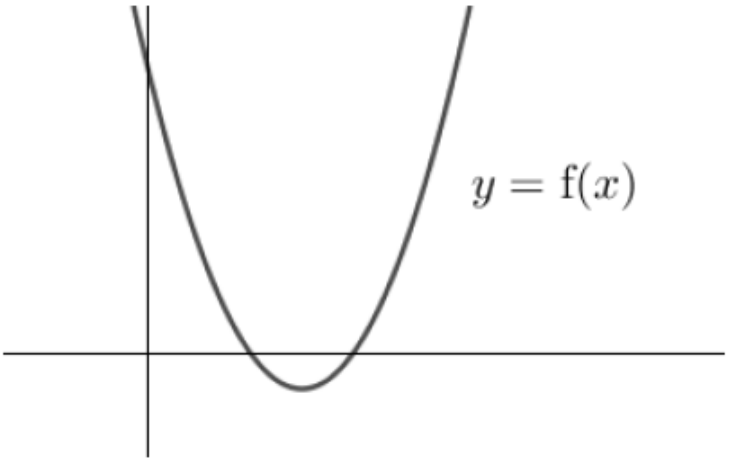
2) P is the point (2, 7). Q is the point (6, -3).
What is the gradient of PQ? Give your answer as an exact decimal.

3) A straight line has a gradient of –2 and passes through the point (4, 1). What is the equation of the line?

(a) $y + 2x = 6$
(b) $y = 2x - 6$
(c) $2y = x - 2$
(d) $y + 2x - 9 = 0$

4) What is the point of intersection of the line $y = 3x + 1$ and $y = 2x + 4$?

5) This diagram shows a sketch of the graph of which of the following quadratics?



(a) $y = x^2 - 3x + 2$
(b) $y = x^2 + 3x + 2$
(c) $y = x^2 - x - 2$
(d) $y = x^2 + x - 2$

9) What is the definition of f?

(a) $f(x)=\begin{cases} x & \text{if } 0\le x\le 1 \\ x^2 & \text{if } 1<x\le 2 \end{cases}$

(b) $f(x)=\begin{cases} x & \text{if } 0\le x\le 1 \\ 2x & \text{if } 1<x\le 2 \end{cases}$

(c) $f(x)=\begin{cases} x & \text{if } 0<x\le 1 \\ 2x & \text{if } 1<x<2 \end{cases}$

(d) $f(x)=\begin{cases} x & \text{if } 0<x\le 1 \\ x^2 & \text{if } 1<x<2 \end{cases}$

10) A function f is defined by

$$\begin{aligned} f(x) &= 2x+1 && 0\le x<2 \\ &= a && 2\le x<6 \\ &= b-x && 6\le x\le c \end{aligned}$$

The graph of $y = f(x)$ is shown in the diagram.
What are the values of a, b and c?