MCINTYRE MATHS · YEAR 10 MATHEMATICS

Practice worksheet

Lesson 1 · Relations and functions

Name: _____ Date: _____

Relations and functions

1. Say whether each relation is one-to-one, one-to-many, many-to-one or many-to-many.
(a) $y = 3x - 2$ (b) $y = x^2 - 4$ (c) $x = y^2 + 2$ (d) $x^2 + y^2 = 16$

2. Which of these are functions?
(a) $\{(0, 2), (1, 5), (2, 2), (3, 8)\}$ (b) $\{(1, 4), (1, 7), (2, 3)\}$ (c) $y = x^3$ (d) $x = -2$

Function notation

3. For $f(x) = 2x^2 - x + 3$, find $f(0)$, $f(-1)$ and $f(3)$.

4. For $g(x) = x^2 + 4x$, find $g(a)$, $g(a + 2)$ and $g(2x)$.

5. For $h(x) = 5 - 3x$, find the value of x for which (a) $h(x) = -4$ (b) $h(x) = 11$.

Domain and range

6. Write down the domain and range of each function.

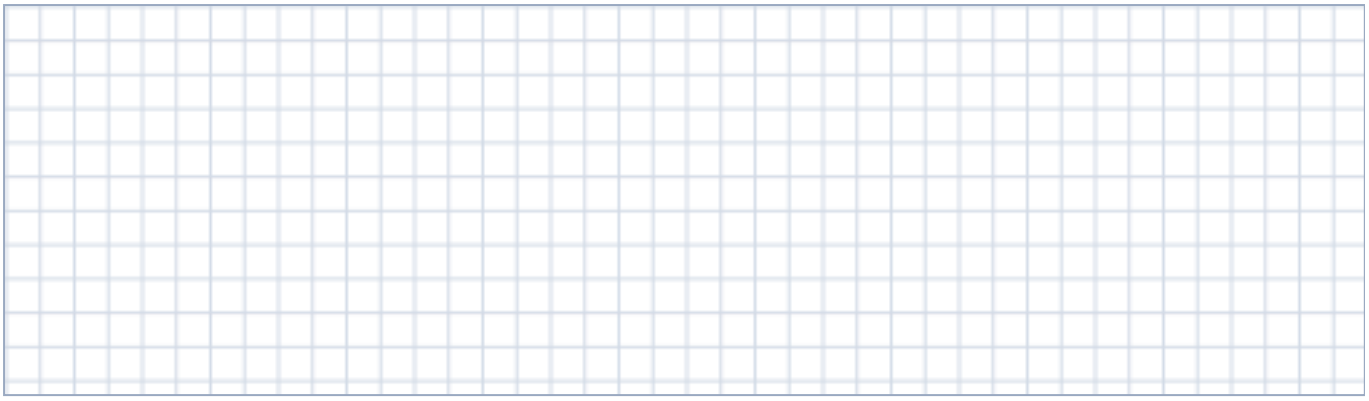
(a) $y = 2x - 7$ (b) $y = x^2 + 1$ (c) $y = -2x^2$ (d) $y = \dfrac{1}{x - 2}$

7. Let $f(x) = x^2 - 6x + 5$.

(a) Find $f(0)$ and $f(5)$.

(b) Is f one-to-one? Explain.

(c) State the range of f.



8. The function f is defined by $f(x) = ax^2 + b$, where $f(1) = 5$ and $f(-2) = 11$.

(a) Find a and b.

(b) State the range of f.

(c) Explain why f is not one-to-one.

