

## Worksheet: Using Functions

Using Functions  
study guide



Model Answers  
to this sheet



In the first two questions on this worksheet you will use the functions  $f(x) = 3x - 1$ ,  $g(x) = 3 - 2x^2$  and  $h(x) = \frac{1}{2}x$  to explore the effect of different inputs into a function.

1. This question has numerical inputs. To practice your numeracy, try to calculate the outputs of the functions without the use of a calculator.

- (a)  $f(2)$       (b)  $f(-2)$       (c)  $g(3)$       (d)  $g(\frac{1}{2})$   
(e)  $h(-5)$       (f)  $h(-\frac{1}{4})$       (g)  $f(0.2)$       (h)  $g(-3.4)$

2. This question has algebraic inputs and so the outputs will be algebraic expressions.

- (a)  $f(t)$       (b)  $f(r)$       (c)  $f(\theta + 1)$       (d)  $f(r^2)$   
(e)  $g(t)$       (f)  $g(1 - x)$       (g)  $g(-3x)$       (h)  $g(1/r)$   
(i)  $h(x + 2)$       (j)  $h(\frac{1}{2}x)$       (k)  $h(2 - x)$       (l)  $h(pq)$

3. This question uses the multivariable function  $f(x, y) = x^2 - y^2$ . What are:

- (a)  $f(1, 2)$       (b)  $f(0, -2)$       (c)  $f(-2, 0)$       (d)  $f(-2, -2)$   
(e)  $f(0, x)$       (f)  $f(y, 0)$       (g)  $f(p, q)$       (h)  $f(2x, 2y)$   
(i)  $f(x + 1, y - 2)$       (j)  $f(1 - y, x + 2)$       (k)  $f(1 - x, 2y)$       (l)  $f(t^2, 1/r^2)$



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