SKILLS AND CONCEPTS You Need

1. Evaluate $f(x) = x^2 + 3x - 4$ for each of the following values.

   a) $f(2)$ b) $f(-1)$ c) $f\left(\frac{1}{4}\right)$ d) $f(a + 1)$

2. Factor each of the following expressions.

   a) $x^2 + 2xy + y^2$ c) $(x + y)^2 - 64$
   b) $5x^2 - 16x + 3$ d) $ax + bx - ay - by$

3. State the **transformations** that are applied to each **parent function**, resulting in the given transformed function. Sketch the graphs of the parent function and transformed function.

   a) $f(x) = x^2, y = f(x - 3) + 2$ c) $g(x) = \sin x, y = -2g(0.5x)$
   b) $f(x) = 2^x, y = f(x - 1) + 2$ d) $g(x) = \sqrt{x}, y = -2g(2x)$

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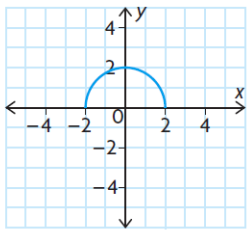
4. State the **domain** and **range** of each function.

   a)



   b) $f(x) = x^2 - 6x - 10$

   c) $y = \frac{1}{x}$

   d) $y = 3 \sin x$

   e) $g(x) = 10^x$

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b) $f(x) = x^2 - 6x - 10$

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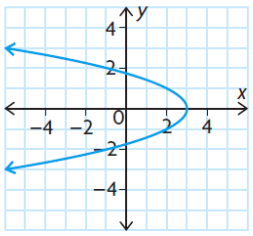
5. Which of the following represent functions? Explain.

a) 

b) $y = 2(x - 1)^2 + 3$

c) $y = \pm\sqrt{x} - 4$

d) $y = 2^x - 4$

e) $y = \cos(2(x - 30°) + 1)$

6. Consider the **relation** $y = x^3$.
   a) If $(2, n)$ is a point on its graph, determine the value of n.
   b) If $(m, 20)$ is a point on its graph, determine m correct to two decimal places.

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Sec 1.1 Functions

The area of a rectangular pen is 1800m².
The width is 30m greater than the length.
What are the dimensions of the pen?

Method One - Algebraic

List what we know:
remember to define variables!

Can we find an equation?

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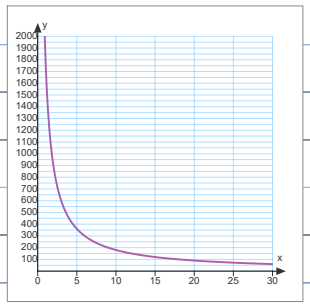
Method Two - Graphical

The area of a rectangular pen is 1800m².
The width is 30m greater than the length.
What are the dimensions of the pen?

x y = 1800

$$y = \frac{1800}{x}$$

x	y



Domain? Shape?

Range?

We know that we want an answer where the length is 30 m more than the width.

How can we solve?

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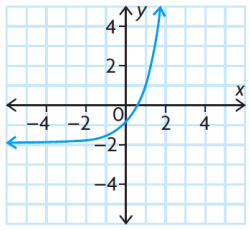
Ex 2 p7

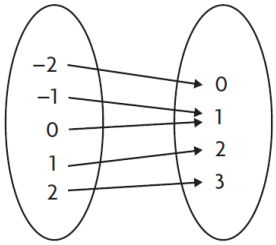
Decide whether each of the following relations is a function. State the domain and range.

a)



b) $y = \frac{1}{x^2}$

c)



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Homework

Read Ex 3 p9
Review "IN Summary" p10
p11 #1, 2, 4,6,7

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