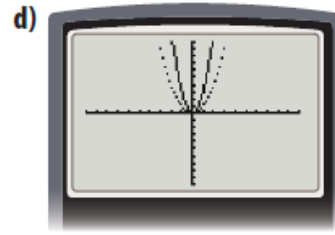
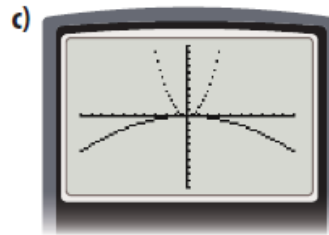
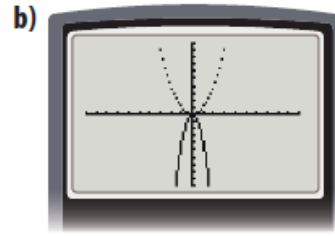
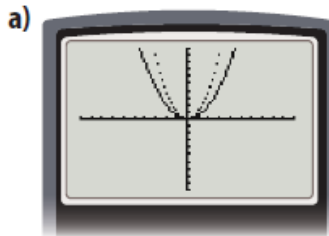


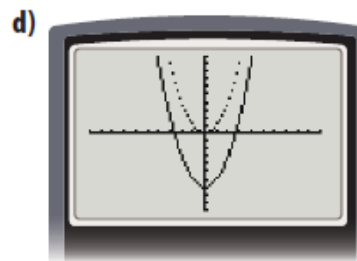
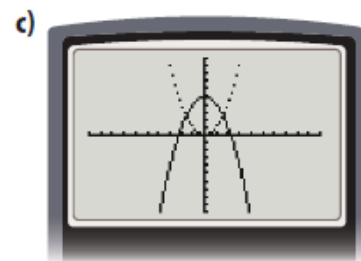
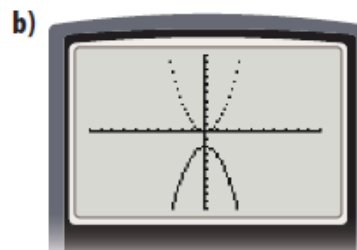
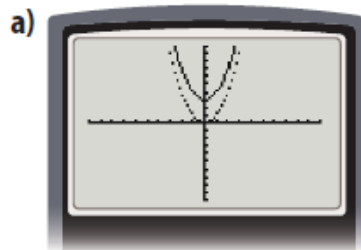
Practise **A**

For help with questions 1 to 4, refer to Example 1.

1. In each standard viewing window, the graph of $y = x^2$ is shown as a dotted parabola and the graph of a relation of the form $y = ax^2$ is shown as a solid parabola. For each solid parabola, is a less than -1 , between 0 and -1 , between 0 and 1 , or greater than 1 ? Explain.



2. In each standard viewing window, the graph of $y = x^2$ is shown as a dotted parabola and the graph of a relation of the form $y = ax^2 + k$ is shown as a solid parabola. For each solid parabola, is k positive or negative? Explain.



3. For each solid parabola in question 2, identify the value of k and the coordinates of the vertex.
4. Describe the shape and position of each parabola relative to the graph of $y = x^2$. Sketch each graph.
- | | |
|-----------------------|--------------------|
| a) $y = 3x^2$ | b) $y = x^2 + 3$ |
| c) $y = -0.5x^2$ | d) $y = x^2 - 12$ |
| e) $y = 0.15x^2 + 13$ | f) $y = -7x^2 + 6$ |
| g) $y = -0.3x^2 - 5$ | h) $y = 10x^2 - 9$ |

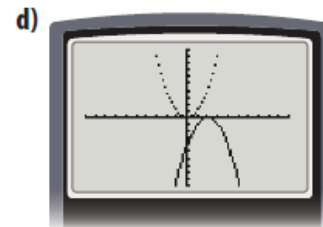
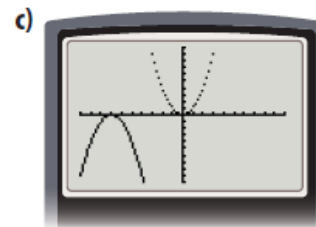
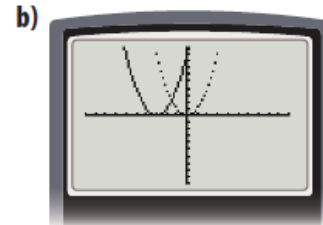
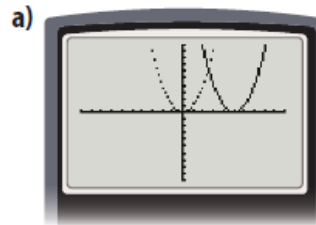
Practise

A

For help with questions 1 and 2, refer to Example 1.

1. In each standard viewing window, the graph of $y = x^2$ is shown as a dotted parabola and the graph of a relation of the form $y = a(x - h)^2$ is shown as a solid parabola.

For each solid parabola, identify the value of h and the coordinates of the vertex.



2. Describe the graph of each parabola relative to the graph of $y = x^2$ in terms of a and h . Sketch each graph.

a) $y = (x - 7)^2$

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

c) $y = 1.5(x + 8)^2$

d) $y = -0.8(x - 2)^2$

e) $y = 0.1(x - 5)^2$

f) $y = 2(x + 1)^2$

g) $y = -2(x - 8)^2$

h) $y = 0.3(x + 14)^2$