

## Using Horizontal and Vertical Shifts

### Answers

1.  $y = (x-3)^2 - 5$

2.  $y = (x+5)^2 + 2$

3.  $y = (x-6)^2 - 6$

4.  $y = 2(x+8)^2 - 4(x+8) - 2$

5.  $y = |x-9| + 18$

6. a)  $y = (x+1)^3$  shifts the cubic 1 unit left

b)  $y = 4 + (x+11)^3$  shifts the cubic 11 units left and 4 units up

c)  $y+5 = x^3 + 3$  shifts the cubic 2 units down

7. a)  $y = f(x+2) - 5$

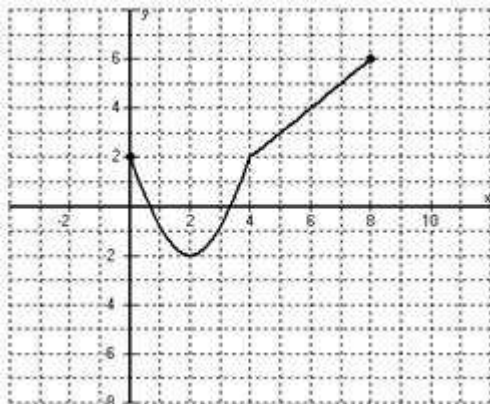
b)  $y = f(x) + 2$

c)  $y = f(x+6) + 2$

d)  $y = f(x-5) + 7$

8.

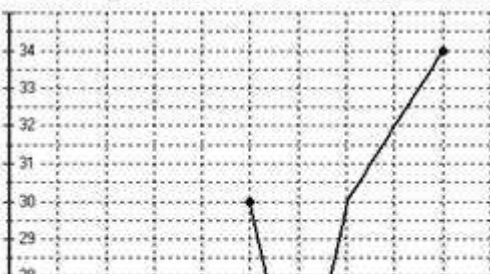
a.)



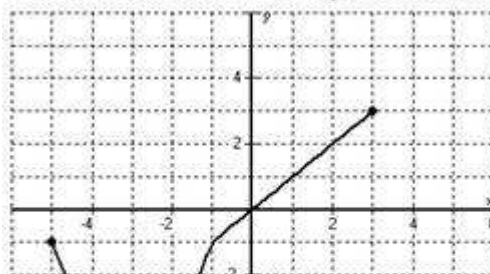
b.)



c.)



d.)



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