

Transformation of functions

Exercise 8:03

- 1** State how the curve $y = x^2$ could be moved to produce each of the following curves.

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

b $y = x^2 + 1$

c $y = x^2 - 1$

d $y = (x - 1)^2$

- 2** Give the equation of the curve that would result if the curve $y = 2^x$ was moved:

a 1 unit up

b 1 unit down

c 1 unit to the right

d 1 unit to the left

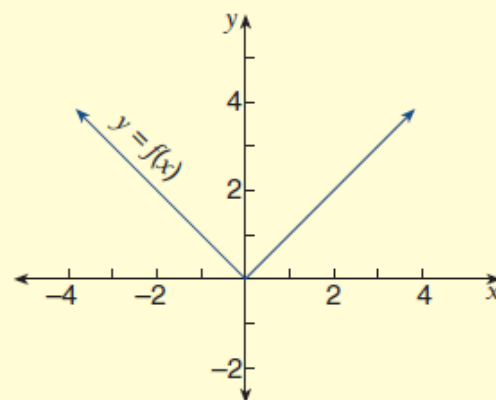
- 3** Use the given graph of $y = f(x)$ to sketch the following functions.

a $y = f(x) + 1$

b $y = f(x) - 2$

c $y = f(x - 1)$

d $y = f(x + 2)$



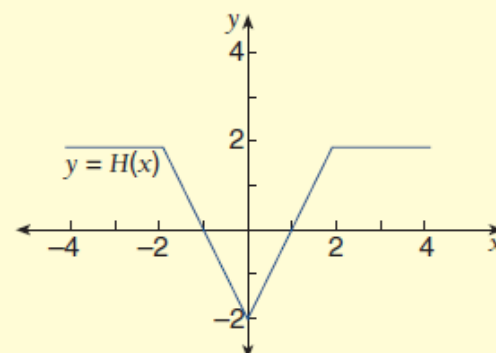
- 4** Use the given graph of $y = H(x)$ to sketch the following functions.

a $y = H(x - 2)$

b $y = H(x) + 2$

c $y = H(x) - 1$

d $y = H(x + 1)$



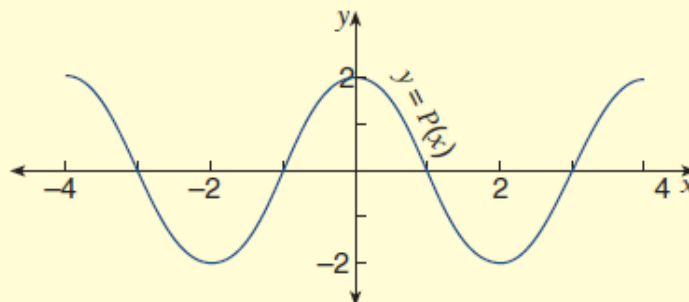
- 5** Use the graph of $y = P(x)$, which is given, to sketch the following functions.

a $y = P(x) + 2$

b $y = P(x + 1)$

c $y = P(x - 2)$

d $y = P(x) - 1$



Answers:

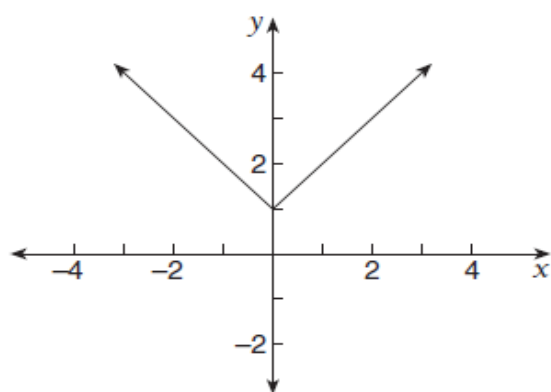
1 a 1 unit to the left

b 1 unit up

2 a $y = 1 + 2^x$

b $y = 2^x - 1$

3 a



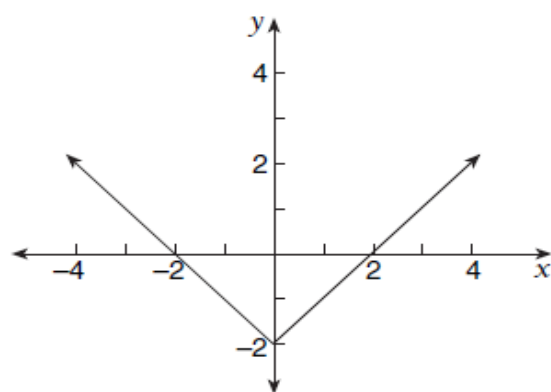
c 1 unit down

d 1 unit to the right

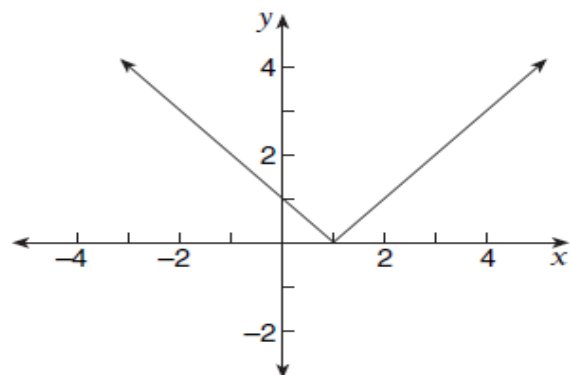
c $y = 2^{x-1}$

d $y = 2^{x+1}$

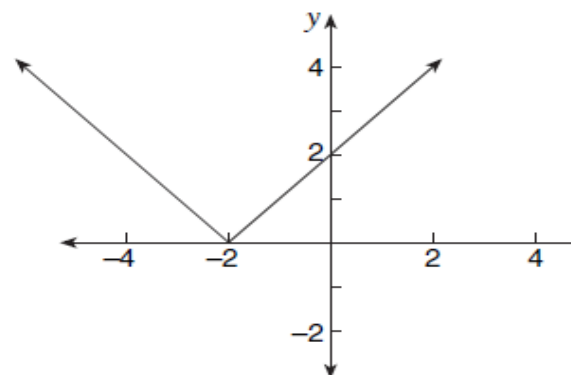
b



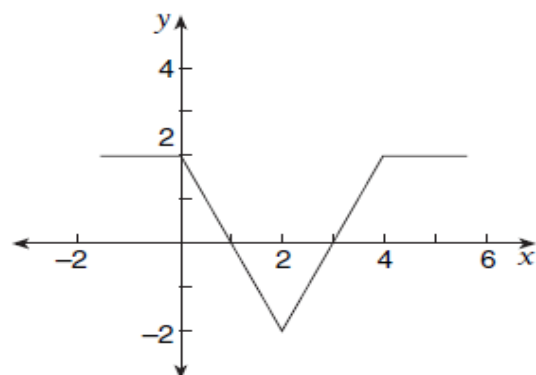
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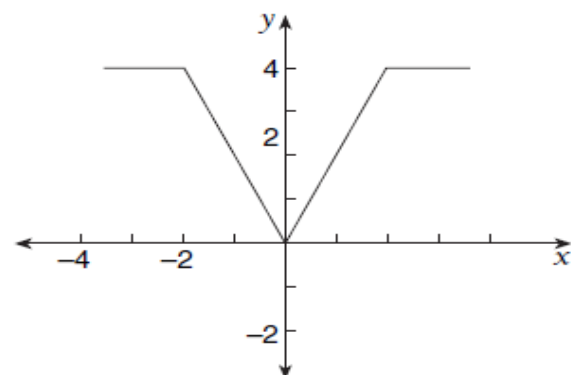
d



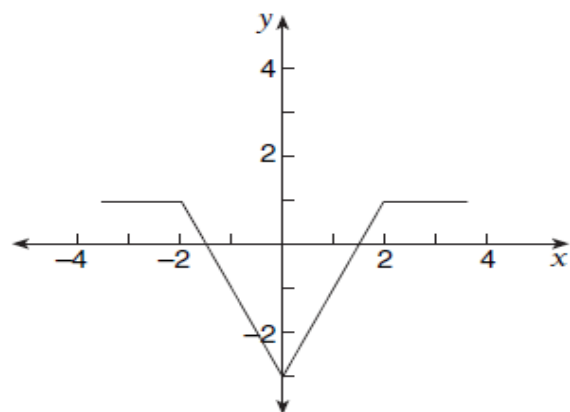
4 a



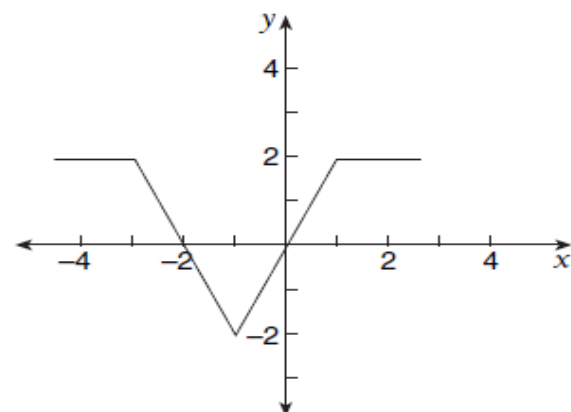
b



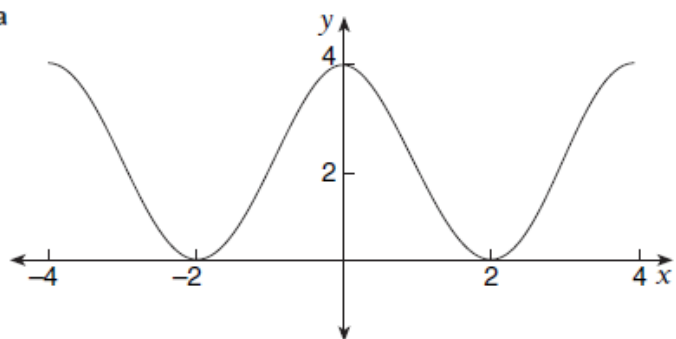
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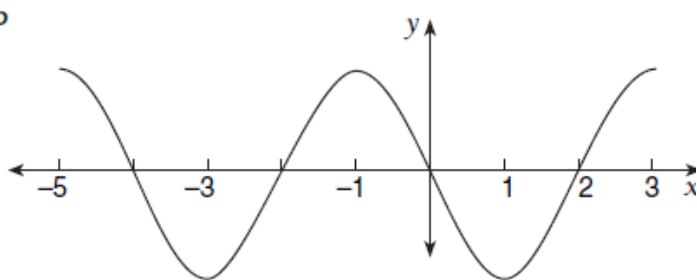
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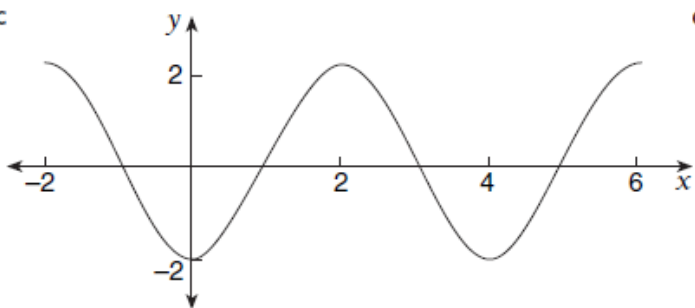
5 a



b



c



d

