Name



Function Operations - Evaluation, Substitution, and Shifts

1 Evaluate g(-4).

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

A 0	B 16
C -16	D 8

2 Find the value of x for which p(x) = -8.

$$p(x) = 4x$$

A 2	B -8
C -2	D -1

3 Which function matches the values in the table?

x	p(x)
-3	13
-1	-3
3	37
5	93

A $p(x) = 3x^2 + 2x - 2$

B $p(x) = 3x^2 + 4x - 3$

C $p(x) = 3x^2 + 5x - 2$

D $p(x) = 3x^2 + 4x - 2$

4 Evaluate p(-1).

$$p(x) = -2x^2 - 4x$$

A 2	B -2
C -6	D 6

5 Find the values of x for which f(x) = -4.

$$f(x) = 2x^2 - 12x + 6$$

A x = 5

B x = -5 or x = -1

C x = 1

D x = 1 or x = 5

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6 Which table of values matches the function?

$$g(x) = -3x^2 - 3x + 1$$

A

x	g(x)
-3	-11
-2	-3
-1	1
4	-39

B

x	g(x)
-3	-17
-2	-5
-1	1
4	-59

7 Use the table to find p(1).

x	p(x)
-1	-6
1	-12
5	-96
6	-132

A

-6

B

-12

C

-132

D

-96

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8 Use the table to find the value of x for which g(x) = -19.

x	g(x)
-2	1
0	-1
2	-19
5	-76

A: 2

B: 5

C: -2

D: 0

9 Evaluate g(-4, 5).

$$g(x,y) = -5x + 5y + 8$$

A: 3 | B: 13

C: -37 | D: 53

10 Evaluate h(-3, -1).

$$h(x,y) = -2x^2 - 4y - 4$$

A: -18 | B: -26

C: 18 | D: -14

11 Evaluate p(-3).

$$p(x) = x + 1$$

A: -2 | B: 4

C: -3 | D: 2

12 Evaluate p(-5).

$$p(x) = -2x^2 + 5x + 7$$

A: -8 | B: -50

C: -68 | D: 15

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13 Which expression equals f(x-3) after simplifying?

$$f(x) = x^2 - x + 9$$

A	$x^2 - 6x + 18$
B	$x^2 - 7x + 21$
C	$x^2 - 7x + 22$
D	$2x^2 - 13x + 30$

14 Which expression shows the substitution for p(x-2) before expanding?

$$p(x) = x^2 - 2x - 9$$

A	$(x-2)^2 - 2(x-2) - 9$
B	$(x-2)^2 - (x-2) - 9$
C	$(x-2)^2 - 2(x-2) - 8$
D	$2(x-2)^2 - 2(x-2) - 9$

15 Which expression equals $p(\frac{1}{x})$ for $x \ne 0$?

$$p(x) = -5x + 6$$

A $-4\frac{1}{x} + 6$	B $-5\frac{1}{x} + 6$
C $-5\frac{1}{x} + 7$	D $\frac{1}{x^2} - 5\frac{1}{x} + 6$

16 Find the value of x for which g(x) = -4.

$$g(x) = -x - 3$$

A 0	B 1
C 2	D -1

17 Find the values of x for which p(x) = 6.

$$p(x) = -x^2 + 4x + 6$$

A	x = 4
B	x = 0 or x = 4
C	x = 0
D	x = -4 or x = 0

18 Which expression equals h(2x+3) after simplifying?

$$h(x) = -3x^2 - 3x - 3$$

A	$-12x^2 - 42x - 39$
B	$-8x^2 - 30x - 30$
C	$-12x^2 - 42x - 38$
D	$-12x^2 - 40x - 36$

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Function Operations - Evaluation, Substitution, and Shifts

19 Which expression equals $g(-x)$ after simplifying?

$$g(x) = -x^2 + 5x$$

A	$-2x^2 - 5x$
B	$-x^2 - 5x + 1$
C	$-x^2 - 5x$
D	$-x^2 - 6x$

20 Given g(x) = f(x+3), which rule defines f(x)?

$$g(x) = -2x^2 - 9x - 18$$

A	$-x^2 + 3x - 9$
B	$-2x^2 + 3x - 9$
C	$-2x^2 + 4x - 9$
D	$-2x^2 + 3x - 8$

21 Given g(x) = f(-2x-3), which rule defines f(x)?

$$g(x) = -4x^2 - 2x - 2$$

A	$-2x^2 - 5x - 8$
B	$-x^2 - 5x - 7$
C	$-x^2 - 4x - 8$
D	$-x^2 - 5x - 8$

22 What is f(2)?

$$f(x) + 2f(2) = 3x - 5$$

A -2/3	B 7/3
C 1/3	D 4/3

23 What is f(-2)?

$$f(x) + 3f(2) = -x$$

A 11/2	B 7/2
C 5/2	D 9/2

24 Which rule defines f(x)?

$$f(x) + f(0) = 4x - 2$$

A	$f(x) = 4x$
B	$f(x) = 4x - 2$
C	$f(x) = 5x + 1$
D	$f(x) = 4x - 1$

25 Assume f is affine. Which rule defines f(x)?

$$f(x) + f(x - 2) = 2x - 5$$

A $f(x) = 1x - \frac{5}{2}$	B $f(x) = 2x + \frac{1}{2}$
C $f(x) = 1x - \frac{3}{2}$	D $f(x) = 1x - \frac{1}{2}$

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26 Which equation follows after replacing x by x+2?

$$f(x)+f(x+2)=2x+7$$

A	$f(x+2)+f(x+4)=3x+13$
B	$f(x+2)+f(x+4)=2x+11$
C	$f(x+2)+f(x+4)=2x+10$
D	$f(x+2)+f(x+4)=2x+12$

27 For x = 3, which branch defines f(3)?

$$f(x)=\begin{cases}1x^2-3 & x\geq 0\\ -1x-1 & x<0\end{cases}$$

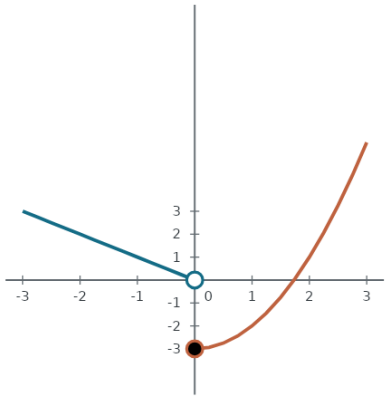
A	x < 0: the linear branch
B	neither
C	both
D	x >= 0: the quadratic branch

28 What is f(1)?

$$f(x)=\begin{cases}1x^2+1 & x\geq 0\\ -1x+2 & x<0\end{cases}$$

A 2	B 3
C 4	D 1

29 Which piecewise rule matches the graph?



A $f(x)=\begin{cases}1x^2-3 & x>0\\ -1x+0 & x\leq 0\end{cases}$	B $f(x)=\begin{cases}1x^2-3 & x\geq 0\\ 1x+0 & x<0\end{cases}$
C $f(x)=\begin{cases}1x^2-3 & x\geq 0\\ -1x+0 & x<0\end{cases}$	D $f(x)=\begin{cases}0x^2-3 & x\geq 0\\ -1x+0 & x<0\end{cases}$

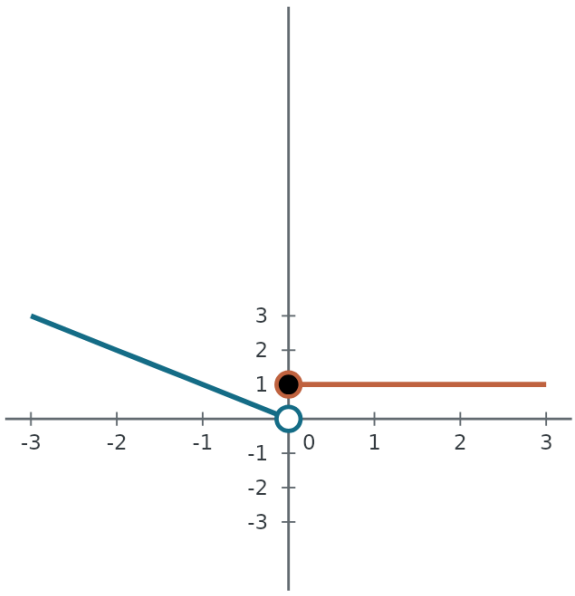
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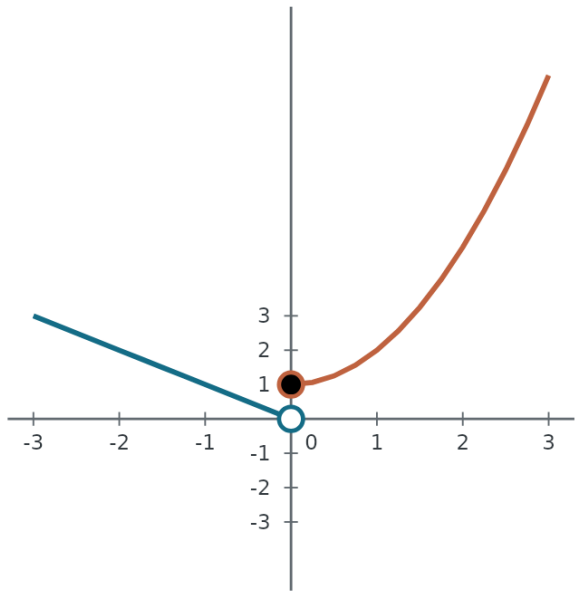
30 Which graph matches this piecewise rule?

$$f(x) = \begin{cases} 1x^2 + 1 & x \geq 0 \\ -1x + 0 & x < 0 \end{cases}$$

A



B



31 What is g(-4)?

$$f(x) = 3x + 2, \quad g(x) = x^2$$

A	B
15	18
C	D
17	16

32 What is f(g(2))?

$$f(x) = 4x + 2, \quad g(x) = x^2$$

A	B
17	19
C	D
18	20

33 Which expression is f(g(x))?

$$f(x) = 2x + 3, \quad g(x) = x^2$$

A	$2x^2 + 4$
B	$3x^2 + 3$
C	$2x^2 + 3$
D	$4x^2 + 12x + 9$

34 Which expression is g(f(x))?

$$f(x) = 4x + 3, \quad g(x) = x^2$$

A	$16x^2 + 25x + 9$
B	$16x^2 + 24x + 9$
C	$16x^2 + 24x + 10$
D	$4x^2 + 3$