

## Evaluating Piecewise Functions

A) Evaluate each function.

$$1) f(x) = \begin{cases} 3x^2 - x & , x \leq -2 \\ 17 & , -2 < x \leq 18 \end{cases}$$

$$2) f(x) = \begin{cases} 5x + 1 & , -20 \leq x \leq 5 \\ -x + 15 & , 5 < x < \infty \end{cases}$$

i)  $f(18) =$  \_\_\_\_\_

i)  $f(-10) =$  \_\_\_\_\_

ii)  $f(-5) =$  \_\_\_\_\_

ii)  $f(14) =$  \_\_\_\_\_

$$3) f(x) = \begin{cases} (x-2)^2 & , x > 0 \\ x^2 - 9x & , x \leq 0 \end{cases}$$

# PREVIEW

,  $x \neq 0$

,  $x = 0$

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i)  $f(7) =$  \_\_\_\_\_

ii)  $f(-11) =$  \_\_\_\_\_

B) If  $f(x) = \begin{cases} x^2 & , x \leq 0 \\ -3x & , 0 < x \end{cases}$

1)  $4f(-7) + 2f(8) =$  \_\_\_\_\_

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3)  $6f(3) \times 3f(-1) =$  \_\_\_\_\_

4)  $f(0) - 5f(16) =$  \_\_\_\_\_

C) If  $f(x) = \begin{cases} x + 3 & , -13 \leq x \leq 0 \\ x^2 - 8 & , 0 < x \leq 13 \end{cases}$  ; what is the value of  $f(12)$ ?

i) 144

ii) 136

iii) 121

iv) 169

## Evaluating Piecewise Functions

A) Evaluate each function.

$$1) f(x) = \begin{cases} 3x^2 - x & , x \leq -2 \\ 17 & , -2 < x \leq 18 \end{cases}$$

$$2) f(x) = \begin{cases} 5x + 1 & , -20 \leq x \leq 5 \\ -x + 15 & , 5 < x < \infty \end{cases}$$

i)  $f(18) =$  17

i)  $f(-10) =$  -49

ii)  $f(-5) =$  80

ii)  $f(14) =$  1

$$3) f(x) = \begin{cases} (x-2)^2 & , x \neq 0 \\ x^2 - 9x & , x = 0 \end{cases}$$

# PREVIEW

,  $x \neq 0$

,  $x = 0$

i)  $f(7) =$  -5

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-5

ii)  $f(-11) =$  12

12

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B) If  $f(x) = \begin{cases} x^2 & , x \leq 0 \\ -3x & , 0 < x \end{cases}$

1)  $4f(-7) + 2f(8) =$  16

16

3)  $6f(3) \times 3f(-1) =$  -162

4)  $f(0) - 5f(16) =$  -240

-240

C) If  $f(x) = \begin{cases} x + 3 & , -13 \leq x \leq 0 \\ x^2 - 8 & , 0 < x \leq 13 \end{cases}$  ; what is the value of  $f(12)$ ?

i) 144

ii)  136

iii) 121

iv) 169