Evaluating Functions

Name _____

Score _____

Evaluate each function.

1) $f(x) = \begin{cases} -x^2 - 3 & ; -4 \le x \le 3 \\ 2x + 1 & ; x \le -3 \\ -6x & ; x \ge 4 \end{cases}$

f(10) = _____   f(−2) = _____

f(−5) = _____   f(4) = _____

f(7) − 3f(0) = _____

2) $f(x) = \begin{cases} 3(5 - x) & ; x < -7 \\ \dfrac{x + 1}{3} & ; x > 7 \\ x^2 + 2 & ; 0 < x < 6 \end{cases}$

f(8) = _____   f(5) = _____

f(−9) = _____   f(−11) = _____

2f(4) + f(−8) = _____

3) $f(x) = \begin{cases} x^3 & ; -1 \le x \le 2 \\ -5x & ; x > 5 \\ x - 4 & ; x < -6 \end{cases}$

f(2) = _____   f(−7) = _____

f(9) = _____   f(13) = _____

f(−1) × f(−8) = _____

4) $f(x) = \begin{cases} x(x - 5) & ; x > 4 \\ 3x + 4 & ; x \le 0 \\ 5(x + 1) & ; 1 < x \le 3 \end{cases}$

f(−4) = _____   f(−12) = _____

f(3) = _____   f(15) = _____

2f(−2) ÷ f(2) = _____

5) $f(x) = \begin{cases} x + 11 & ; -4 < x < 6 \\ \dfrac{x}{5} & ; x \ge 7 \\ -2x & ; x < -6 \end{cases}$

f(15) = _____   f(−9) = _____

f(20) = _____   f(−3) = _____

f(0) + 4f(−10) = _____

6) $f(x) = \begin{cases} x^2 - x - 5 & ; x < 0 \\ -x - 3 & ; x > 10 \\ x^2(2 + x) & ; 1 < x < 4 \end{cases}$

f(−1) = _____   f(−6) = _____

f(14) = _____   f(2) = _____

3f(3) − f(16) = _____

Evaluating Functions

Answer key

Evaluate each function.

1) $f(x) = \begin{cases} -x^2 - 3 & ; -4 \le x \le 3 \\ 2x + 1 & ; x \le -3 \\ -6x & ; x \ge 4 \end{cases}$

  $f(10) = $ **−60** $f(-2) = $ **−12**

  $f(-5) = $ **−9** $f(4) = $ **−24**

  $f(7) - 3f(0) = $ **−33**

2) $f(x) = \begin{cases} 3(5 - x) & ; x < -7 \\ \dfrac{x + 1}{3} & ; x > 7 \\ x^2 + 2 & ; 0 < x < 6 \end{cases}$

  $f(8) = $ **3** $f(5) = $ **27**

  $f(-9) = $ **42** $f(-11) = $ **48**

  $2f(4) + f(-8) = $ **75**

3) $f(x) = \begin{cases} x^3 & ; -1 \le x \le 2 \\ -5x & ; x > 5 \\ x - 4 & ; x < -6 \end{cases}$

  $f(2) = $ **8** $f(-7) = $ **−11**

  $f(9) = $ **−45** $f(13) = $ **−65**

  $f(-1) \times f(-8) = $ **32**

4) $f(x) = \begin{cases} x(x - 5) & ; x > 4 \\ 3x + 4 & ; x \le 0 \\ 5(x + 1) & ; 1 < x \le 3 \end{cases}$

  $f(-4) = $ **−8** $f(-12) = $ **−32**

  $f(3) = $ **20** $f(15) = $ **150**

  $2f(-2) \div f(2) = $ $-\dfrac{4}{15}$

5) $f(x) = \begin{cases} x + 11 & ; -4 < x < 6 \\ \dfrac{x}{5} & ; x \ge 7 \\ -2x & ; x < -6 \end{cases}$

  $f(15) = $ **3** $f(-9) = $ **18**

  $f(20) = $ **4** $f(-3) = $ **8**

  $f(0) + 4f(-10) = $ **91**

6) $f(x) = \begin{cases} x^2 - x - 5 & ; x < 0 \\ -x - 3 & ; x > 10 \\ x^2(2 + x) & ; 1 < x < 4 \end{cases}$

  $f(-1) = $ **−3** $f(-6) = $ **37**

  $f(14) = $ **−17** $f(2) = $ **16**

  $3f(3) - f(16) = $ **154**