Math 102
Take-Home Quiz / Quiz #8

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

List all the elements of B that belong to the given set.

1) $B = \left\{15, \sqrt{7}, -7, 0, \frac{5}{7}, -\frac{7}{5}, 4.0, \sqrt{4}\right\}$ 1) _____

Integers

A) 15, 0 B) 15, -7, 0, $\sqrt{4}$ C) 15, 0, $\sqrt{4}$ D) 15, -7, 0

2) $B = \left\{18, \sqrt{7}, -8, 0, \frac{0}{1}, \sqrt{25}, 0.59\right\}$ 2) _____

Rational numbers

A) 18, 0, $\sqrt{25}$ B) $\sqrt{7}, \frac{0}{1}, 0.59$

C) $\sqrt{7}, \sqrt{25}$ D) 18, -8, 0, $\frac{0}{1}, \sqrt{25}, 0.59$

Solve the formula for the specified variable.

3) $I = \frac{nE}{nr + R}$ for n 3) _____

A) $n = \frac{IR}{Ir + E}$ B) n = IR(Ir - E) C) $n = \frac{-R}{Ir - E}$ D) $n = \frac{-IR}{Ir - E}$

4) $F = \frac{9}{5}C + 32$ for C 4) _____

A) $C = \frac{5}{F - 32}$ B) $C = \frac{F - 32}{9}$ C) $C = \frac{5}{9}(F - 32)$ D) $C = \frac{9}{5}(F - 32)$

Find the domain and range.

5) {(-9, 4), (-9, -7), (-4, -2), (1, 6), (3, 7)} 5) _____

A) domain = {3, 15, -9, 1, -4}; range = {7, -7, 6, -2, 4}
B) domain = {3, -9, 1, -4}; range = {7, -7, 6, -2, 4}
C) domain = {3, -5, -9, 1, -4}; range = {7, -7, 6, -2, 4}
D) domain = {7, -7, 6, -2, 4}; range = {3, 3, -9, 1, -4}

Decide whether the relation defines a function.

6) $y = \frac{10}{17 - x}$ 6) _____

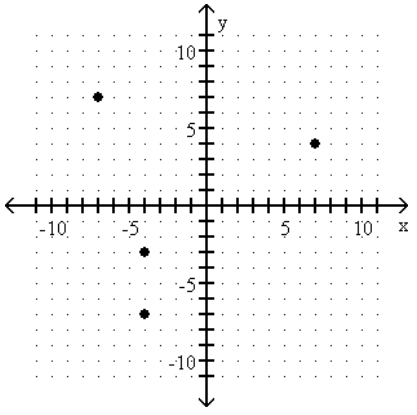
A) function B) not a function

7) y = |x| - 3 7) _____

A) function B) not a function

Find the domain and the range of the relation. Then determine whether the relation is a function.

8) 8) _____



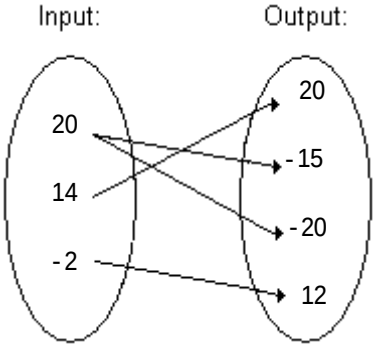
A) domain: {-7, -4, 7}
range: {7, -3, -7, 4}
function

B) domain: {-7, -4, 7}
range: {7, -3, -7, 4}
not a function

C) domain: {7, -3, -7, 4}
range: {-7, -4, 7}
not a function

D) domain: {7, -3, -7, 4}
range: {-7, -4, 7}
function

9) 9) _____



A) domain: {20, 14, -2}
range: {20, -15, -20, 12}
not a function

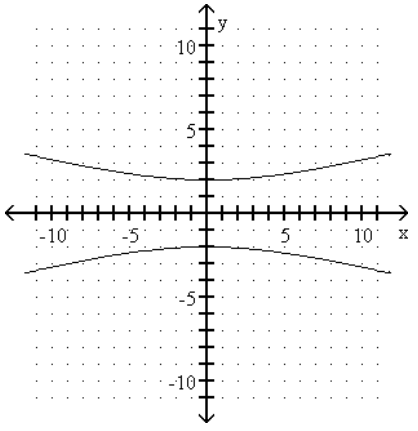
B) domain: {20, -15, -20, 12}
range: {20, 14, -2}
function

C) domain: {20, -15, -20, 12}
range: {20, 14, -2}
not a function

D) domain: {20, 14, -2}
range: {20, -15, -20, 12}
function

Find the domain and the range of the relation. Use the vertical line test to determine whether the graph is the graph of a function.

10) 10) _____



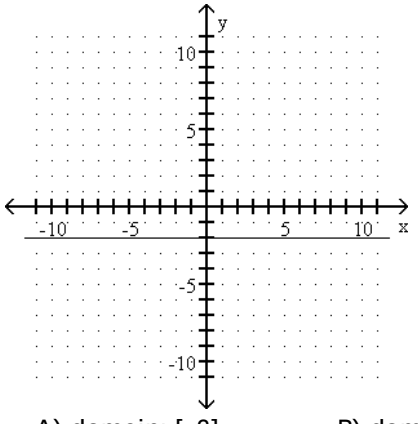
A) domain: $(-\infty, -2] \cup [2, \infty)$
range: $(-\infty, \infty)$
function

B) domain: $(-\infty, \infty)$
range: $(-\infty, -2] \cup [2, \infty)$
not a function

C) domain: $(-\infty, \infty)$
range: $(-\infty, -2] \cup [2, \infty)$
function

D) domain: $(-\infty, -2] \cup [2, \infty)$
range: $(-\infty, \infty)$
not a function

11) 11) _____



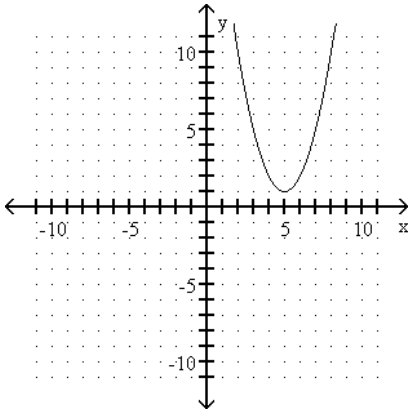
A) domain: $[-2]$
range: $(-\infty, \infty)$
not a function

B) domain: $(-\infty, \infty)$
range: $[-2]$
function

C) domain: $[-2]$
range: $(-\infty, \infty)$
function

D) domain: $(-\infty, \infty)$
range: $[-2]$
not a function

12) 12) _____



A) domain: [1, ∞)
range: (-∞, ∞)
not a function

B) domain: (-∞, ∞)
range: [1, ∞)
function

C) domain: (-∞, ∞)
range: [1, ∞)
not a function

D) domain: [1, ∞)
range: (-∞, ∞)
function

Find the indicated value.

13) Find f(12) when f(x) = 9x - 2 13) _____

A) 106 B) 107 C) 110 D) 84

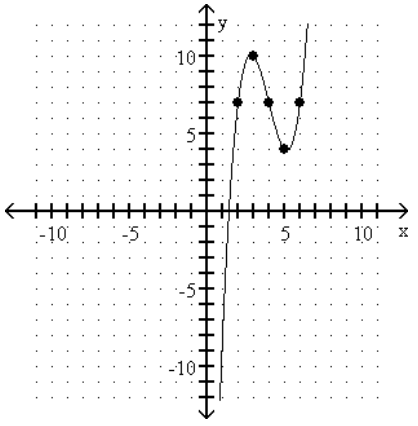
14) Find f(-2) when f(x) = 3 14) _____

A) 3 B) -6 C) -3 D) -2

15) Find f(w) when $f(x) = -\frac{1}{2}x + 10$ 15) _____

A) $-\frac{1}{2}x + 10w$ B) -5w C) -2w + 10 D) $-\frac{1}{2}w + 10$

16) Use the graph to find f(3). 16) _____



A) 9 B) 10 C) 11 D) -10

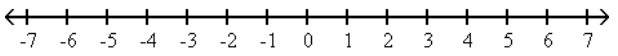
Find an equation of the line. Write the equation using function notation.

17) Through (3, -4); perpendicular to f(x) = 3x + 1 17) _____

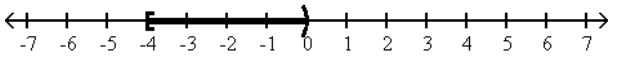
A) $f(x) = -\frac{1}{3}x - 3$ B) f(x) = -3x - 3 C) $f(x) = \frac{1}{3}x - 3$ D) f(x) = 3x - 3

Graph the solution set of the inequality and write it in interval notation.

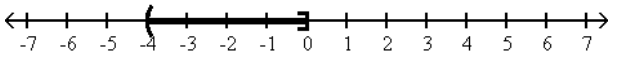
18) $\{x \mid -4 \le x < 0\}$ 18) _____



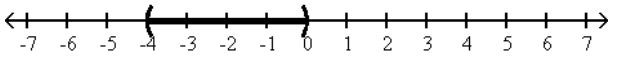
A) [-4, 0)



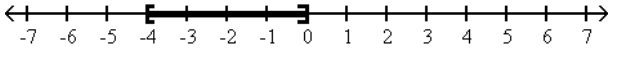
B) (-4, 0]



C) (-4, 0)



D) [-4, 0]



Solve the problem. If necessary, round results to two decimal places.

19) A small projectile is fired straight up from ground level with an initial velocity of 80 feet per second. Neglecting air resistance, the projectile's height, y, at time x seconds is given by the equation $y = -16x^2 + 80x$. What is the object's maximum height? 19) _____

A) 100 ft. B) 92 ft. C) 110 ft. D) 104 ft.

Solve.

20) The population of a town increased by 40% in 5 years. If the population is currently13,000, find the population of this town 5 years ago. (Round to the nearest whole, if necessary.) 20) _____

A) 32,500 B) 7800 C) 9286 D) 5200

21) A diamond ring sold for $2228.10 including tax. If the tax rate where the diamond was purchased is 6.1%, find the price of the ring before the tax was added. (Round to the nearest cent, if necessary.) 21) _____

A) $135.91 B) $2092.19 C) $2364.01 D) $2100.00

Use the formula $A = P(1 + \frac{r}{n})^{nt}$ to find the amount requested.

22) A principal of $12,000 is invested in an account paying an annual interest rate of 12%. Find the amount in the account after 7 years if the account is compounded quarterly. 22) _____

A) $26,528.18 B) $26,655.47 C) $15,455.13 D) $27,455.13