

## Sample Test 2

Name \_\_\_\_\_

In the real test you will have 10 questions and the following rules:

You have 50 minutes to complete the test below. The usage of books or notes, or communication with other students is not allowed. Ask me if you have questions.

*This is a multiple choice test. You do not have to justify your answer. If, however, you are not sure that your selection is correct, put a star (\*) in front of the question number, and include your calculations on an attached sheet. I will look at an attached calculation only if I see a star in front of the question number.*

*-If you mark an incorrect answer but your calculations contain only minor mistakes, you will get up to 75% credit for the problem.*

*-Beware: if you instruct me to look at a severely incorrect calculation, you will lose at least 50% of the credit, even if by chance you mark the correct answer. (No credit is given for an incorrect answer and totally incorrect calculations.)*

*You get full credit if you mark the correct answer, and mark no star, or if you mark the correct answer, express doubt by marking a star, but I find your calculations perfectly correct.*

**Solve the equation.**

1)  $|b + 9| - 3 = 6$

A)  $\{0\}$

B)  $\{-18, 0\}$

C) No solution

D)  $\{0, 18\}$

**Solve the inequality.**

2)  $|3x - 5| + 9 < 3$

A)  $\frac{11}{3} < x < -\frac{1}{3}$

B)  $x < \frac{11}{3}$

C)  $x < -\frac{1}{3}$

D) No solution

**Use the distance formula to find the distance between the pair of points.**

3)  $(5, -5)$   $(7, -1)$

A)  $12\sqrt{3}$

B) 2

C) 12

D)  $2\sqrt{5}$

**Find the indicated point.**

4) Find the midpoint of the line segment whose endpoints are  $(5x, 1)$  and  $(6x, 9)$ .

A)  $(11x, 10)$

B)  $(5x, \frac{11}{2})$

C)  $(\frac{11}{2}x, 5)$

D)  $(x, 8)$

**Name the quadrant in which the point is located.**

5)  $(5, -9)$

A) I

B) III

C) IV

D) II

**List the intercepts for the equation.**

6)  $x^2 + y - 25 = 0$

A)  $(-5, 0), (5, 0)$

B)  $(0, 25), (-5, 0), (5, 0)$

C)  $(25, 0), (0, -5), (0, 5)$

D)  $(0, -5), (0, 5)$

**Determine whether the function is symmetric with respect to the y-axis, symmetric with respect to the x-axis, symmetric with respect to the origin, or none of these.**

7)  $y = -3x^3 + 6x$

A) origin only

B) y-axis only

C) x-axis, y-axis, origin

D) x-axis only

Write an equation in standard form for a line satisfying the given conditions.

8) Through (2, 4);  $m = -\frac{4}{7}$

A)  $7x + 4y = -36$

B)  $4x - 7y = 36$

C)  $4x + 7y = 36$

D)  $4x + 7y = -36$

Write an equation for the line.

9) Through (1, 8) perpendicular to  $-7x - 2y = -25$

A)  $-2x - 7y = -25$

B)  $-7x + 2y = 54$

C)  $-2x + 7y = 54$

D)  $-2x - 7y = 54$

Find the center and the radius of the circle.

10)  $x^2 - 12x + 36 + y^2 - 8y + 16 = 16$

A)  $(-6, -4)$ ,  $r = 16$

B)  $(-4, -6)$ ,  $r = 16$

C)  $(6, 4)$ ,  $r = 4$

D)  $(4, 6)$ ,  $r = 4$

Decide whether the relation defines a function.

11)  $\{(-5, -4), (-1, 2), (1, -5), (1, 3)\}$

A) Not a function

B) Function

Determine if the given function is even, odd, or neither.

12)  $f(x) = 4x^2 + x^4$

A) Odd

B) Neither

C) Even

Give the domain of the function.

13)  $f(x) = \frac{\sqrt{x+7}}{(x+1)(x+7)}$

A) All real numbers

B)  $x \geq -7$ ,  $x \neq -1$ ,  $x \neq -7$

C)  $x \neq -7$ ,  $x \neq -1$ ,  $x \neq -7$

D)  $x > 0$

Give the domain and range of the equation and indicate whether or not it is a function.

14)  $y = -8x^2 + 7$

A)  $D = (-\infty, \infty)$ ,  $R = (-\infty, \infty)$ , yes

B)  $D = (-\infty, \infty)$ ,  $R = (-\infty, \infty)$ , no

C)  $D = (-\infty, \infty)$ ,  $R = (7, \infty)$ , yes

D)  $D = (-\infty, \infty)$ ,  $R = (-\infty, 7]$ , yes

15)  $x = y^2 + 9$

A)  $D = (-\infty, \infty)$ ,  $R = [9, \infty)$ , yes

B)  $D = (-\infty, \infty)$ ,  $R = (-\infty, \infty)$ , no

C)  $D = [9, \infty)$ ,  $R = (-\infty, \infty)$ , no

D)  $D = (-\infty, \infty)$ ,  $R = (-\infty, \infty)$ , yes

Find the average rate of change for the function over the given interval.

16)  $f(x) = \sqrt{2x}$  between  $x = 2$  and  $x = 8$

A) 7

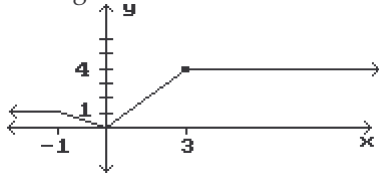
B)  $\frac{1}{3}$

C)  $-\frac{3}{10}$

D) 2

Identify the intervals where the function is changing as requested.

17) Decreasing



A)  $(-\infty, 0)$

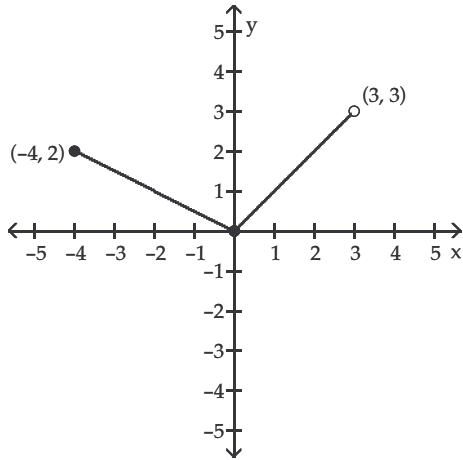
B)  $(-1, 0)$

C)  $(3, \infty)$

D)  $(0, 3)$

The graph of a piecewise-defined function is given. Write a definition for the function.

18)



A)  $f(x) = \frac{1}{2}x$  if  $-4 \leq x \leq 0$

$f(x) = x$  if  $0 \leq x < 3$

C)  $f(x) = -\frac{1}{2}x$  if  $-4 < x < 0$

$f(x) = x$  if  $0 < x < 3$

B)  $f(x) = -2x$  if  $-4 \leq x \leq 0$   
 $f(x) = x$  if  $0 \leq x < 3$

D)  $f(x) = -\frac{1}{2}x$  if  $-4 \leq x \leq 0$

$f(x) = x$  if  $0 \leq x < 3$

Find the requested function value.

19)

If  $f(x) = \begin{cases} x^3 & \text{if } x < 0 \\ 2x + 5 & \text{if } x \geq 0 \end{cases}$  find  $f(-2)$

A) -8

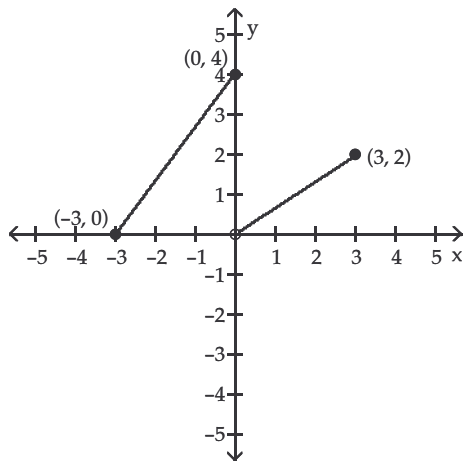
B) 8

C) 1

D) 9

The graph of a piecewise-defined function is given. Write a definition for the function.

20)



A)  $f(x) = \frac{4}{3}x + 4$  if  $-3 \leq x \leq 0$

$f(x) = \frac{2}{3}x$  if  $0 < x \leq 3$

C)  $f(x) = \frac{4}{3}x - 4$  if  $-3 \leq x \leq 0$

$f(x) = \frac{2}{3}x$  if  $0 \leq x \leq 3$

B)  $f(x) = \frac{4}{3}x + 4$  if  $-3 \leq x \leq 0$

$f(x) = \frac{2}{3}x + 2$  if  $0 < x \leq 3$

D)  $f(x) = \frac{3}{4}x + 4$  if  $-3 \leq x \leq 0$

$f(x) = \frac{3}{2}x$  if  $0 < x \leq 3$

## Answer Key

Testname: STEST2.TST

- 1) B
- 2) D
- 3) D
- 4) C
- 5) C
- 6) B
- 7) A
- 8) C
- 9) C
- 10) C
- 11) A
- 12) C
- 13) B
- 14) D
- 15) C
- 16) B
- 17) B
- 18) D
- 19) A
- 20) A