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

Give the domain of the function.

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

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.

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

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

14) $x = y^2 + 9$

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

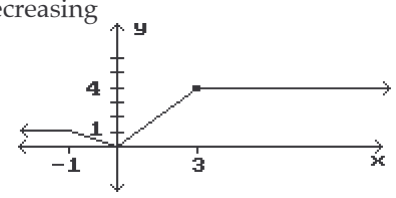
Find the average rate of change for the function over the given interval.

15) $f(x) = \sqrt{2x}$ 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.

16) Decreasing



A) $(-\infty, 0)$ B) $(-1, 0)$ C) $(3, \infty)$ D) $(0, 3)$

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

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

A) Neither B) Even C) Odd

Find the requested function value.

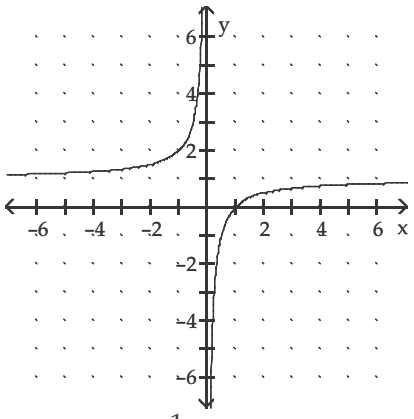
18)

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

Match the correct function to a given graph.

19)



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

Tell whether the graph of the function opens upward or downward and whether the graph is wider, narrower, or the same as $f(x) = x^2$.

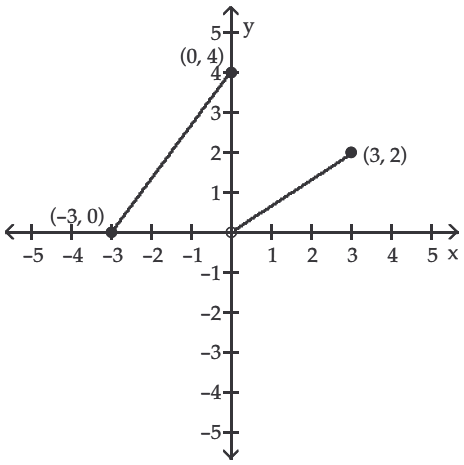
20) $f(x) = -9x^2$

A) Upward, narrower B) Downward, narrower

C) Upward, wider D) Downward, wider

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

21)



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

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

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

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

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

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

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

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

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) B
13) D
14) C
15) B
16) B
17) B
18) A
19) A
20) B
21) A