

Name:

Sec 2.1

sec

1] If the graph of $y = \frac{x-1}{x+3}$ is shifted horizontally two units ~~up~~ to left and vertically three units up, then the equation of the new graph is:

a) $y = \frac{4x+16}{x+5}$

b) $y = \frac{-2x+13}{x+5}$

c) $y = \frac{2x+14}{x+5}$

2] The x-intercept of the line through the points (2, -1) and (-1, 2) is

a) (1, 0)

b) (-2, 0)

c) (4, 0)

d) (-3, 0)

3] if $f(x) = \frac{1}{x}$, then $\frac{1}{h} [f(\frac{1}{2}+h) - f(\frac{1}{2})]$ is equal to

a) $\frac{4}{2+h}$

b) $\frac{-2}{1+2h}$

c) $\frac{4}{1+2h}$

d) $\frac{1}{h^2}$

4] The graph of the equation $|x-y|=1$ is

a) only two points

b) two perpendicular lines

c) two parallel lines.

5] Which of the following relations DOES NOT define y as a function of x?

a) $\sqrt{x^2+y^2} = 3$

b) $|x| - y = 5$

d) $x + y^3 = 1$

6] The solution set of $\left[\left[\frac{1}{3}x\right]\right] = -1$, where $[y]$ is the greatest integer less than or equal to y , is equal to
 (a) $[-3, 0)$ (b) $(-6, -3)$ (c) $[-3, -1]$

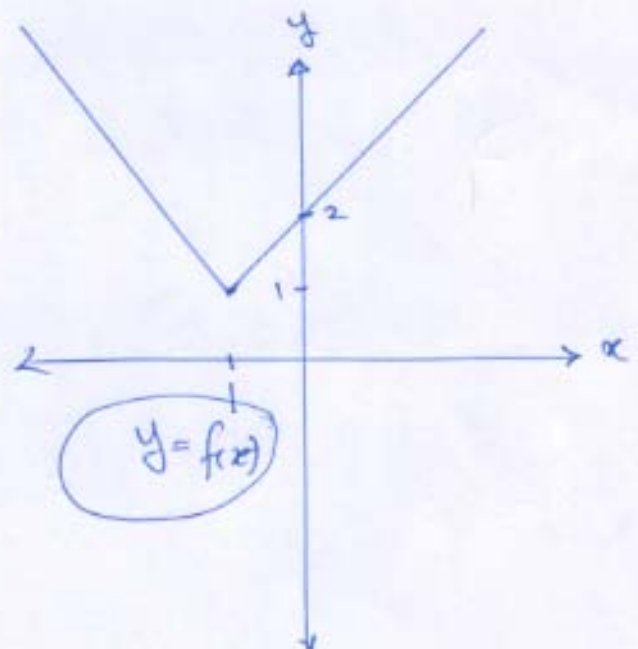
7] If the point (a, b) lies in quadrant III, then the point $(ab, -1)$ lies in quadrant
 (a) I (b) II (c) III (d) IV

8] The domain of $f(x) = \sqrt{\frac{x^2+1}{3-x}}$ is
 (a) $(-\infty, 3)$ (b) $(-\infty, 3) \cup (3, \infty)$ (c) $(-3, -1)$

9] The range of $f(x) = \begin{cases} 2 & \text{if } x \leq 1 \\ x & \text{if } x > 1 \end{cases}$ is equal to
 (a) $(1, \infty)$ (b) $[1, \infty)$ (c) $(2, \infty)$

10] The adjacent figure is the graph of $y = f(x)$. If $E(x) = |x-1| + 1$, then which one of the following statements is true?

- (a) $f(x) = -E(x)$
 (b) $f(x) = E(x-1)$
 (c) $f(x) = E(x+1)$
 (d) $f(x) = E\left(\frac{1}{2}x\right)$
 (e) $f(x) = E(-x)$



11] The graph of a linear function f has the intercepts $(-k, 0)$ and $(0, k)$, where $k \neq 0$, then k is equal to:
 a) 16 b) 7 c) -4 d) 13 e) 2

12] An equation of a circle that has a diameter with endpoints $(2, 7)$ and $(-6, 3)$ is

a) $(x-2)^2 + (y-5)^2 = 23$

b) $(x+4)^2 + (y-2)^2 = 29$

c) $(x+4)^2 + (y-2)^2 = 35$

d) $(x+2)^2 + (y+5)^2 = 29$

13] The graph of $|y-x| = |x^2+1|$ is symmetric with respect to
 a) the origin only b) x-axis only c) y-axis only

14] The value of the constant k for which the line $(k+1)x - 3y + 1 = 0$ and $x + 2ky + 1 = 0$ are perpendicular is equal to

a) $\frac{1}{5}$

b) $\frac{2}{5}$

c) $\frac{2}{5}$

d) a, b and c are wrong.

15] If (a, b) is the intersection point of $f_1(x) = -3x - 7$ and $f_2(x) = 2x + 13$, then $a+b =$

a) -2

b) 1

c) 4

d) -3

16] Let f be a function such that $f(-3) = 4$. Give the coordinates of a point on the graph of each of the following functions:

a) $y = f(x-2)$

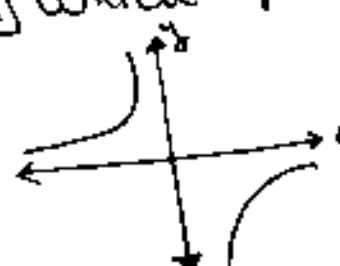
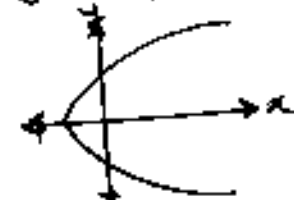

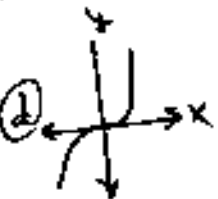
b) $y = f(x) + 3$

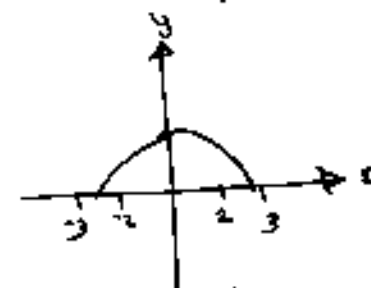
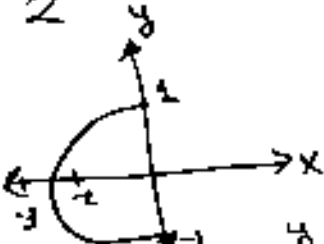

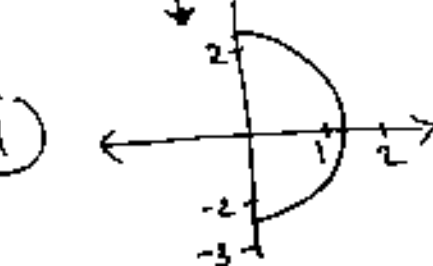
17] The graph of the circle $x^2 + y^2 - 2x + 4y + 1 = 0$ is
 a) tangent to the x-axis only. b) tangent to the y-axis only
 c) tangent to both the axes d) not tangent to any of the axes.

18] if $-3 \leq x \leq 0$, then the range of $f(x) = (x+1)^2 + 1$ is equal to
 a) $[1, 5]$ b) $[2, 5]$ c) $[1, \infty)$ d) $(5, \infty)$

19] Given the function $f(x) = \begin{cases} [x] & -4 \leq x \leq -2 \\ x & -2 \leq x < 3 \end{cases}$
 where $[x]$ is the greatest integer less than or equal to x .
 a) Sketch the graph of $f(x)$ b) Evaluate $f(-\frac{5}{2}) + f(\frac{5}{2})$.

20] if (a, b) is the vertex of the parabola $y = -2x^2 + 4x - 4$
 then $a+b$ is equal to:
 a) -1 b) -2 c) 2 d) 0 e) 1.

21] Which of the following graphs is not the graph of a function?
 a)  b)  c)  d) 

22] The graph of $x = \frac{\sqrt{25 - 16y^2}}{2}$ is
 a)  b)  c) 
 d)  e) 