

1)  $\frac{1}{2} + \frac{1}{3} =$  a)  $\frac{1}{6}$  b)  $\frac{1}{5}$  c)  $\frac{5}{6}$

2) Simplify  $\frac{1}{2-1}$  a)  $2+1$  b)  $2-1$  c)  $\frac{1}{2+1}$

3) If  $f(x) = x^3 - 3x^2 + 3$  then  $f(-1) =$  a) 1 b) 0 c) -1

4) If  $x^2 - 7x + 3 = 0$  then  $x =$  a) 2 or 5 b) -2 or -5 c) 0

5)  $\frac{1}{x^2} - \frac{1}{x+5} =$  a)  $\frac{7}{x^2+3x-10}$  b)  $\frac{3}{x^2+3x-10}$  c)  $\frac{7}{x^2-3x-10}$

6) If  $x^5 = 3$  then a)  $-8 - x^{-2}$  b)  $-2 - x^{-8}$  c)  $2 - x^{-8}$

7) If  $5^x = 12$  then  $x =$  a) 1.8 b)  $\log_5 12$  c)  $\log_{12} 5$

8) The radius of the circle  $x^2 + 4x + y^2 = 5$  is a) 1 b) 2 c) 3

9) If  $\tan \theta = \frac{3}{4}$  and  $\theta$  is in the third quadrant then  $\cos \theta =$  a)  $\frac{4}{5}$  b)  $-\frac{4}{5}$  c)  $-\frac{3}{5}$  4

10) If  $7 + \frac{2}{3}x = 3$  then  $x =$  a) -2 b) -6 c) -12

11) The domain of  $f(x) = \sqrt{x-4}$  is a)  $x > 4$  b)  $x \geq 4$  c)  $x < 4$

12) simplify  $\frac{(9 \cdot 27)^2}{3^8}$  a) 3 b) 9 c) 27

13) How many radians is  $30^\circ$ ? a)  $\frac{\pi}{4}$  b)  $\frac{\pi}{6}$  c)  $\frac{\pi}{3}$

14) The slope perpendicular to  $y = -\frac{3}{7}x + 1$  is a)  $\frac{7}{3}$  b)  $-\frac{7}{3}$  c)  $\frac{3}{7}$

15) The midpoint of (8,2) and (16, 8) is a) (-4, -3) b) (24, 10) c) (12, 5)

16) The equation of the line that passes through (4, 5) and (2,1) is  
a)  $y = -2x - 3$  b)  $y = 2x + 3$  c)  $y = 2x - 3$

17) If  $y = (3x + 1)^7$  then  $x =$  a)  $\sqrt[7]{3y+1}$  b)  $\frac{\sqrt[7]{y}-1}{3}$  c)  $\frac{\sqrt[7]{y}-1}{3}$

- 18) If  $\log_6(x-1) + \log_6(4) = 2$  then  $x =$  a) 10 b) 6 c) 3
- 19) Which statement is not true? Given  $y = 3(x+1)^2 + 2$   
 a) the vertex is (-1, 2) b) it is inverted c) it has no x intercepts
- 20) If  $x^2 + 4x - 3$  then a)  $1 < x < 3$  b)  $-1 < x < -3$  c)  $-3 < x < -1$
- 21) If  $2^x = \frac{8}{16^0}$  then  $x =$  a)  $\frac{1}{2}$  b)  $\frac{3}{2}$  c) 3
- 22) If  $x^3 + 8x^2 + 15x = 0$  then  $x =$  a) -1, 1 or 8 b) 0, 3 or 5 c) -5, -3 or 0
- 23)  $(x^2 - 5)(x^3 + 2x^2 - x + 1) =$   
 a)  $x^5 + 2x^4 - 6x^3 - 9x^2 + 5x - 5$  b)  $x^5 + 2x^4 - 4x^3 - 11x^2 + 5x - 5$  c)  $x^5 + x^4 - 9x^2 - 5$
- 24) The length of the hypotenuse formed by (0,0) , (4,0) and (4,10) is a) 4 29 b) 2 29 c) 29
- 25) If  $x^2 - 6x + 2 = 0$  then  $x =$  a)  $\frac{6 \pm 7}{2}$  b)  $3 \pm 7$  c)  $\frac{3 \pm 7}{2}$
- 26) If the radius of a circle is tripled the new area is 81 . What was the original area?  
 a) 3 b) 6 c) 9
- 27)  $\tan \frac{\pi}{4} =$  a) - 3 b) -1 c)  $\frac{2}{2}$
- 28)  $y = 3x^2 + 1$  and  $y = 2x + 9$  both pass through a (1,4) b) (2,13) c) (0,1)
- 29) Write the equation of the line with slope of 3 and y-intercept of -2.  
 a)  $y = -2x + 3$  b)  $y = 3x - 2$  c)  $y = 3x + 2$
- 30) Which equation describes the graph below?

