

Name: Answer key

S1
Precalculus Mock Final MC Part I

1. If $f(x) = -\sqrt{x}$ and $g(x) = -\sqrt{x-5}$ how does the graph change from $f(x)$ to $g(x)$?

- A.) shifts up
- B.) Shifts down
- C.) shifts right
- D.) Shifts left

2. Describe the continuity of the graph $y = \frac{(x-3)(x+4)}{x-3} + 4$.

- A.) infinite discontinuity
- B.) jump discontinuity
- C.) point discontinuity
- D.) The graph is continuous

3. The following statements are true about the function $f(x) = (x+2)^3 + 2x^2 - 5$ except:

- A.) has no absolute extrema
- B.) has an x-intercept at $x = 0$
- C.) has a y-intercept at $(0,3)$
- D.) R: $(0, \infty)$

4. $f(x)$ is defined by the following table. Evaluate $f^{-1}(1)$.

x	-3	0	1	4
y	0	1	4	-3

- A.) -3
- B.) 0
- C.) 1
- D.) 4

5. Which of the following functions is odd?

- A.) $y = 2|x-1| + 4$
- B.) $y = -3x^2$
- C.) $y = 2(x+1)^3$
- D.) $y = -4x^3$

6. State the horizontal asymptote for the function $g(x) = \frac{3x^2 - 2}{3x^2 + 4x - 8}$.

- A.) none
- B.) $y = 0$
- C.) $y = 1$
- D.) $y = 3$

7. Describe the continuity of the graph $y = \frac{x^2}{x-1} + 4$.

A.) continuous

B.) point discontinuity

C.) jump discontinuity

D.) infinite discontinuity

8. Find the zero(s) for the function $g(x) = 4x^3 - 64x$.

$$0 = 4x(x^2 - 16)$$
$$x = 0, \pm 4$$

A.) 0

B.) 0, 4

C.) -4, 0, 4

D.) no zeros exist

9. If $f(x) = x^4 - 19x^2 - 27x + 90$, which of the following is an approximate zero of the function?

A.) -1.6658

B.) 4.5363

C.) 3.3899

D.) 90.0

10. Which of the following is NOT a possible combination of real and imaginary solutions for a cubic (3rd degree) polynomial?

A.) 0 real, 3 imag

B.) 1 real, 2 imag

C.) 2 real, 1 imag

D.) 3 real, 0 imag

11. Which of the following is a possible solution of $\frac{3}{x-2} + \frac{2x-3}{x} = \frac{5}{x+7}$?

~~A.) -7~~

B.) -2

~~C.) 0~~

~~D.) 2~~

12. If $\frac{5}{u-2} = \frac{15}{u+4}$, then $u =$?

A.) -3

B.) -1

C.) 3

D.) 5

$$5u + 20 = 15u - 30$$
$$50 = 10u$$
$$5 = u$$

13. Write an equation of a circle with center at (3, -2) and (-1, 1) is a point on the circle.

~~A.) $(x+3)^2 + (y-2)^2 = 5$~~

~~B.) $(x-3)^2 + (y+2)^2 = 5$~~

~~C.) $(x+3)^2 + (y-2)^2 = 25$~~

D.) $(x-3)^2 + (y+2)^2 = 25$

$$d = \sqrt{4^2 + 3^2}$$
$$d = 5$$
$$r^2 = 25$$