

The 60-minute, 40-item, Precalculus/Calculus Test will assess your Intermediate Algebra and Trigonometry skills for placement into Math 170-Precalculus Math, or Math 180-Calculus I. Recommendations for placement into these courses will be based on the score you achieve on the Precalculus/Calculus Test. To take this test you must have completed a Intermediate Algebra and a full semester course in Trigonometry. The following questions are similar to the questions on the Precalculus/Calculus Test. It is very important that you review before taking the Precalculus/Calculus Test as you will not have an opportunity to retake the test.

1. Multiply:  $\frac{(a+b)^3}{(x-y)^2} \cdot \frac{(x-y)}{(5-p)} \cdot \frac{(p-5)^2}{(a+b)^2}$

2. Divide and simplify:  $\frac{a-4}{\frac{3}{a}-2}$

3. Simplify:  $\frac{2x^{-3}}{6x^{-4}}$

4. Simplify (assume all radicals are real numbers):  $x\sqrt{2x} + 2\sqrt{2x^3} + \frac{2x^2}{\sqrt{2x}}$

5. Find an equation of the line through the points (-3,1) and (-1, -4).

6. Solve and graph:  $1 \leq |x+3|$

7. Use the quadratic Formula to solve  $2x^2 - x - 2 = 0$ .

8. Sketch the graph of  $y = (x-2)^2 - 1$

9. If  $f(x) = x^2$  and  $g(x) = x - 3$ , find  $g(f(x))$ .

10. Sketch the graph of  $y = \frac{1}{x-2}$

11. Find the radian measure of  $217^\circ$ .

12. Solve  $\sin^2 q = 1 + \cos q$  if  $0 \leq q \leq 2\pi$ .

13. Find the degree measure of  $-\frac{7\pi}{6}$  radians.

14. Solve the following equation for x in terms of y:  $3^x = y$

15. Solve the following equation for x in terms of y and z:  $\log(x) = 2\log(y) - \log(z)$ .

16. Find the inverse function of  $f(x) = 3x - 2$ .

17. Find the inverse function of  $y = 4^x$ .

18. True or False: The square of the sum of two numbers is the same as the sum of the squares of the two numbers.

19. True or False: The sum of the absolute values of two numbers is the same as the absolute value of the sum of the two numbers.

20. True or False: The reciprocal of the quotient of two numbers is the same as the quotient of the reciprocals of the two numbers.

**Answers:**

1.  $\frac{(a+b)(p-5)}{(y-x)}$ ;

2.  $\frac{a(a-4)}{3-2a}$ ;

3.  $\frac{x}{3}$ ;

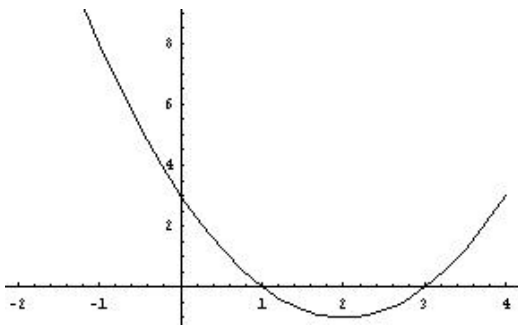
4.  $4x\sqrt{2x}$ ;

5.  $5x+2y+13=0$ ;

6.  $x \leq -4 \cup x \geq -2$

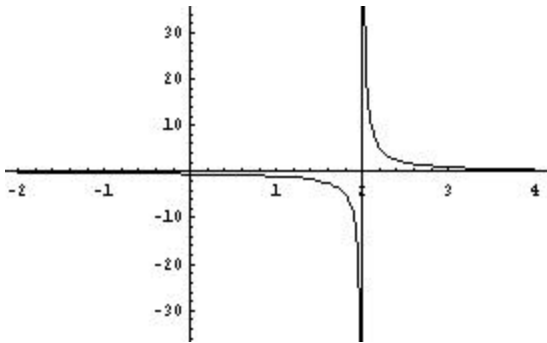
7.  $\frac{1 \pm \sqrt{17}}{4}$ ;

8.



9.  $g(x^2) = x^2 - 3$ ;

10.



11. 3.787 radians;

12.  $q = \frac{p}{2}, p, \frac{3p}{2}$ ;

13.  $-210^\circ$ ;

14.  $x = \log_3(y)$ ;

15.  $x = \frac{y^2}{z}$ ;

16.  $f^{-1}(x) = \frac{x+2}{3}$ ;

17.  $y = \log_4 x$ ;

18. False;

19. False;

20. True