

# PLACEMENT TEST FOR ALGEBRA 2

## Read First: [Instruction for Placement Test Algebra 2](#)

Solve the following quadratic equations by completing the square:

1.  $x^2 - 16 = 6x$

2.  $x^2 + 1 = 3x$

3.  $x^2 = 9 - 7x$

Use the quadratic formula to solve the following quadratic equations:

4.  $3x = 4 - x^2$

5.  $2x^2 - 6 = 3x$

6. A single six-sided die is rolled three times. What is the probability that a 6 will appear all three times?

Factor the following trinomials:

7.  $3x^2 + x - 14$

8.  $15 + 2x^2 - 11x$

Factor by grouping:

9.  $xy - 2a - 2x + ay$

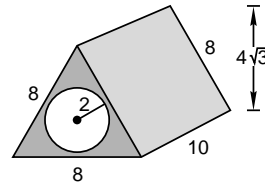
10.  $2amn - 6n - 3m + am^2$

11. The number of green beads varied inversely as the square of the number of yellow beads. When there were 8 greens, there were 5 yellows. How many greens would there be if there were 10 yellows?

12. Simplify:  $\frac{3\sqrt{3} + \sqrt{3}}{\sqrt{3}}$

13. Find the equation of the line through  $(3, -6)$  that is parallel to  $y = \frac{2}{3}x + 3$ .

14. A cylinder whose radius is 2 inches is removed from the right prism as shown. The ends of the prism have the shape of an equilateral triangle whose sides are 8 inches long. Find the volume of the remaining solid in cubic inches. Dimensions are in inches.



15. Solve:  $\sqrt{3m - 5} - 4 = -3$

16. Graph on a number line:  $5 \leq x + 3 < 7$ ;  $D = \{\text{Reals}\}$

17. Melinda walked to the mall at 4 miles per hour and then rode back home in a bus at 24 miles per hour. If her total traveling time was 14 hours, how far was it to the mall?

18. Scott and Heather cut a 160-foot cord into two lengths. The ratio of the lengths was 7 to 1. How long was each length?

19. Simplify:  $(5 + 2\sqrt{3})(\sqrt{3} - 3)$

20. Solve:  $\frac{5x}{2} - \frac{x - 2}{3} = 7$

# TEST ANSWERS

To determine course placement, see this: [Placement Guide Algebra 2](#)

1.  $8, -2$

2.  $\frac{3}{2} \pm \frac{\sqrt{5}}{2}$

3.  $-\frac{7}{2} \pm \frac{\sqrt{85}}{2}$

4.  $1, -4$

5.  $\frac{3}{4} \pm \frac{\sqrt{57}}{4}$

6.  $\frac{1}{216}$

7.  $(3x + 7)(x - 2)$

8.  $(2x - 5)(x - 3)$

9.  $(x + a)(y - 2)$

10.  $(am - 3)(2n + m)$

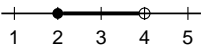
11.  $2$

12.  $4$

13.  $y = \frac{2}{3}x - 8$

14.  $151.53 \text{ in.}^3$

15.  $2$

16. 

17.  $48 \text{ miles}$

18.  $140 \text{ ft}, 20 \text{ ft}$

19.  $-9 - \sqrt{3}$

20.  $\frac{38}{13}$