

## Intermediate Algebra Placement Test

1. State the law of the real numbers needed to justify:

$$7(\sqrt{3} + 9) = 7\sqrt{3} + 63$$

2. Simplify:  $5i \cdot 2i =$  \_\_\_\_\_

3. Simplify:  $\frac{\sqrt{5}}{2\sqrt{3}-3}$

4. Simplify (using radical form for answer):  $\sqrt[5]{32x^8}$

5. Perform the indicated operation:  $(3x^2 - 10x - 9) \div (3x + 2)$

6. Factor completely:  $5x^2 - 10x - 40$

7. Factor completely:  $25x^4 - (a - b)^2$

8. Perform the indicated operation:

$$\frac{4 - 25x^2}{5x^2 + 18x - 8} \div \frac{5x^2 + 17x + 6}{x^2 - 3x - 28}$$

9. Perform the indicated operation:

$$\frac{2x - 3}{2x^2 + 7x - 4} - \frac{x - 1}{x^2 + 2x - 8}$$

10. Solve:  $2x^2 - 7x + 2 = 0$

11. Solve:  $|3x - 1| = 10$

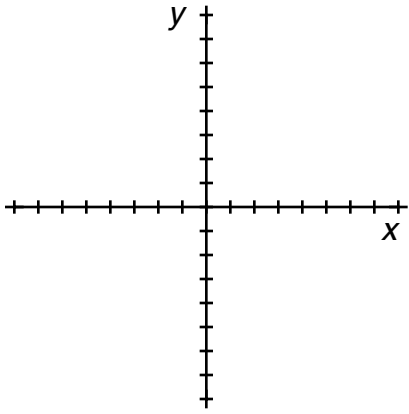
12. Write the equation  $2x - 3y = 7$  in slope and y-intercept form.

13. Write an equation in standard form that has a slope of -2 and passes through the point (3, -1).

14. Find the common solution:

$$\begin{aligned}x - 3y + 2z &= 10 \\2x + 2y - z &= 2 \\-2x - y + 3z &= 1\end{aligned}$$

15. Graph:  $y = (x - 3)^2$



## Intermediate Algebra Placement Test Answers

1. Distributive Law of Multiplication Over Addition

2. -10

3.  $\frac{2\sqrt{15}+3\sqrt{15}}{3}$

4.  $2x\sqrt[5]{x^3}$

5.  $x - 4$  R -1

6.  $5(x - 4)(x + 2)$

7.  $(5x^2 + a - b)(5x^2 - a + b)$

8.  $\frac{-(x-7)}{x+3}$

9.  $\frac{-4x+5}{(2x-1)(x+4)(x-2)}$

10.  $\left\{ \frac{7+\sqrt{33}}{4}, \frac{7-\sqrt{33}}{4} \right\}$

11.  $\left\{ \frac{11}{3}, -3 \right\}$

12.  $y = \frac{2}{3}x - \frac{7}{3}$

13.  $2x + y = 5$

14. (3, -1, 2)

15.

