

Blinn College  
Mathematics and Engineering Department

# Intermediate Algebra

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## 1. Sample Test

Instructions. You must click on Begin Quiz to initialize the quiz. Not doing so brings forth an error message. When finished, click on End Quiz.

Answer each of the following. Passing is 80%.

1. Simplify:  $\frac{(5x^{5/2})^2}{x^3}$

$5x^2$

$25x^2$

$5x^{3/2}$

$\frac{25}{x}$

2. Simplify:  $m^2 s^3 \sqrt{m^{11} s^7}$

$m^8 s^9 \sqrt{ms}$

$m^7 s^6 \sqrt{m}$

$m^5 s^3 \sqrt{ms}$

$m^7 s^6 \sqrt{ms}$

3. Simplify:  $\sqrt{20} + \sqrt{125} - \sqrt{80}$

$7\sqrt{5}$

$\sqrt{5}$

$3\sqrt{10}$

$3\sqrt{5}$

4. Simplify:  $(2\sqrt{x} + 4)(\sqrt{x} - 4)$

$2x - 4\sqrt{x} - 16$

$2x - 16$

$4\sqrt{x} - 14$

$2x - \sqrt{x} - 16$

5. Simplify:  $(3 - \sqrt{6})^2$

$15 - 6\sqrt{6}$

3

15

$15 - \sqrt{6}$

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

$\frac{3\sqrt{2} - \sqrt{6}}{6}$

$\frac{3\sqrt{3} + \sqrt{6}}{6}$

$\frac{3\sqrt{2} + \sqrt{6}}{6}$

$\frac{\sqrt{2}}{6}$

7. Solve for  $y$ ,  $y - 1 = \sqrt{2y - 2}$ . The SUM of the solution(s) is:

4

0

$\sqrt{3}$

no solution

For each of the following problems, work each problem on a separate sheet of paper and type in the correct answer.

8. Simplify:  $(16x^{2/3}y^{1/3})^{3/4} =$

9. Simplify:  $\sqrt[3]{m^{13}n^9} =$

10. Simplify:  $\sqrt{18} - \sqrt{50} + \sqrt{12} - \sqrt{75} =$

11. Simplify:  $(\sqrt{x} - 2)(\sqrt{x} - 3x) =$

12. Simplify:  $(\sqrt{6} - \sqrt{10})^2 =$

13. Rationalize:  $\frac{\sqrt{2}}{\sqrt{8} + 2} =$

14. Solve:  $x = \sqrt{4 - 3x}$ ,  $x =$

Free response answers:

## Solutions to Quizzes

Solution to Quiz:

$$\frac{(5x^{5/2})^2}{x^3} = \frac{25x^5}{x^3} = 25x^2$$



**Solution to Quiz:**

$$\begin{aligned}m^2 s^3 \sqrt{m^{11} s^7} &= m^2 s^3 m^5 s^3 \sqrt{ms} \\ &= m^7 s^6 \sqrt{ms}\end{aligned}$$



**Solution to Quiz:**

$$\begin{aligned}\sqrt{20} + \sqrt{125} - \sqrt{80} &= 2\sqrt{5} + 5\sqrt{5} - 4\sqrt{5} \\ &= 3\sqrt{5}\end{aligned}$$



**Solution to Quiz:**

$$\begin{aligned}(2\sqrt{x} + 4)(\sqrt{x} - 4) &= 2x - 8\sqrt{x} + 4\sqrt{x} - 16 \\ &= 2x - 4\sqrt{x} - 16\end{aligned}$$



**Solution to Quiz:**

$$\begin{aligned}(3 - \sqrt{6})^2 &= (3 - \sqrt{6})(3 - \sqrt{6}) \\ &= 9 - 3\sqrt{6} - 3\sqrt{6} + 6 \\ &= 15 - 6\sqrt{6}\end{aligned}$$



**Solution to Quiz:**

$$\begin{aligned}\frac{\sqrt{2}}{3 - \sqrt{3}} &= \frac{\sqrt{2}}{3 - \sqrt{3}} \cdot \frac{3 + \sqrt{3}}{3 + \sqrt{3}} \\ &= \frac{3\sqrt{2} + \sqrt{6}}{9 - 3} \\ &= \frac{3\sqrt{2} + \sqrt{6}}{6}\end{aligned}$$



**Solution to Quiz:**

$$y - 1 = \sqrt{2y - 2}$$

$$(y - 1)^2 = 2y - 2$$

$$y^2 - 2y + 1 = 2y - 2$$

$$y^2 - 4y + 3 = 0$$

$$(y - 1)(y - 3) = 0$$

$$y - 1 = 0 \quad \text{or} \quad y - 3 = 0$$

$$y = 1 \quad \text{or} \quad y = 3$$

You need to check the possible answers. The SUM of the solutions is:

$$1 + 3 = 4$$

