

1. Simplify.

$$5x^2\sqrt{128x^5y^3}$$

- a) $48x^2y\sqrt{xy}$
- b) $40x^4y\sqrt{2xy}$
- c) $13x^4y\sqrt{2xy}$
- d) $40x^2y^2\sqrt{2xy}$

2. Multiply and simplify.

$$\frac{x-5y}{x^2+xy} \cdot \frac{y^2-x^2}{10y-2x}$$

- a) $\frac{2x-2y}{x}$
- b) $\frac{y-x}{x}$
- c) $\frac{x-y}{2x}$
- d) $\frac{y-x}{2x}$

3. Solve the equation for x .

$$\frac{x}{x+6} = \frac{72}{x^2-36} + 4$$

- a) $x = 4$ and $x = -6$
- b) $x = 4$ only
- c) $x = 6$ and $x = -6$
- d) no solution

4. The ratio of Jack's income spent on rent to his income spent on car payments is 4 to 1. If he spends a total of \$1640 per month on the rent and car payment, how much does he spend on the rent?

- a) \$328
- b) \$410
- c) \$1230
- d) \$1312

5. Simplify.

$$(2i-3)(7+4i)$$

- a) $-13+2i$
- b) $-29+2i$
- c) $-2+10i$
- d) $-29+7i$

6. Calculate i^{13} .

- a) i
- b) -1
- c) $-i$
- d) -1

7. Perform the indicated operation.

$$\frac{6x}{3x^2+4xy-4y^2} - \frac{3x}{x^2+xy-2y^2}$$

- a) $\frac{-3x^2}{(3x-2y)(x+2y)(x-y)}$
- b) $\frac{-3x^2+12xy}{(3x-2y)(x+2y)(x+y)}$
- c) $\frac{15x^2}{(3x-2y)(x+2y)(x-y)}$
- d) $\frac{3x^2+12xy}{(3x-2y)(x+2y)(x+y)}$

8. Solve the equation for x .

$$\frac{x+1}{x-4} + \frac{1}{5} = \frac{5}{x-4}$$

- a) $x = 3$ only
- b) $x = 4$ only
- c) $\frac{2}{3}$ only
- d) no solution

9. Rationalize the denominator and simplify.

$$\frac{-6}{\sqrt{5}-3}$$

- a) $\frac{3(\sqrt{5}+3)}{2}$
- b) $\frac{-3(\sqrt{5}-3)}{2}$
- c) $-3(\sqrt{5}+3)$
- d) $-3(\sqrt{5}-3)$

10. Find **ALL** roots of the equation.

$$(x + 2)(x - 3) = 2$$

- a) $\{-2, 3\}$
 b) $\{-1, 5\}$
 c) $\left\{\frac{1 - \sqrt{33}}{2}, \frac{1 + \sqrt{33}}{2}\right\}$
 d) $\left\{\frac{1 - i\sqrt{31}}{2}, \frac{1 + i\sqrt{31}}{2}\right\}$

11. Simplify.

$$\frac{2}{3}xy\sqrt{36x^3} - \frac{7}{5}\sqrt{25x^5y^2} + \frac{11}{7}\sqrt{49x^3y}$$

- a) $-14x^2y\sqrt{x}$
 b) $-3x^2y\sqrt{x} + 11xy\sqrt{xy}$
 c) $\frac{27}{5}x^2y\sqrt{x} + \frac{11}{7}xy\sqrt{x}$
 d) $11xy\sqrt{x} - 3x^2y\sqrt{x}$

12. Write the complex number in standard $a + bi$ form.

$$\frac{-4 + 3i}{6 - 2i}$$

- a) $-\frac{3}{5} - \frac{1}{10}i$
 b) $-\frac{5}{8} - \frac{3}{8}i$
 c) $-\frac{3}{4} + \frac{1}{4}i$
 d) $-\frac{15}{16} + \frac{5}{16}i$

13. Simplify.

$$\frac{t+1}{t-2} - \frac{t-2}{t+4} + \frac{1}{t-2}$$

- a) $\frac{t+8}{3t}$
 b) $\frac{9t+8}{t+2}$
 c) 1
 d) 3

14. Solve the equation for x .

$$x^2 - 2x + 3 = 0$$

- a) $x = -1$ and $x = 3$
 b) $x = 1 - 2i\sqrt{2}$ and $x = 1 + 2i\sqrt{2}$
 c) $x = -1 - 2i\sqrt{2}$ and $x = -1 + 2i\sqrt{2}$
 d) $x = 1 - i\sqrt{2}$ and $x = 1 + i\sqrt{2}$

15. Rationalize the denominator and simplify.

$$\frac{3\sqrt{2} - \sqrt{5}}{3\sqrt{2} + \sqrt{5}}$$

- a) $\frac{23}{13}$
 b) $\frac{23 - 6\sqrt{10}}{13}$
 c) $\frac{13 - 6\sqrt{10}}{13}$
 d) $11 - 6\sqrt{10}$

16. Simplify.

$$2x\sqrt[4]{32xy^4} + y\sqrt[4]{162x^5}$$

- a) $7xy\sqrt[4]{2x}$
 b) $4xy\sqrt[4]{2x} + 3xy\sqrt[4]{x}$
 c) $x\sqrt[4]{x}$
 d) $xy\sqrt[4]{2x}$

17. Divide and simplify.

$$\frac{6a^2 + ab - b^2}{10a^2 + 5ab} \div \frac{3a^2 + 5ab - 2b^2}{2a^3 + 4a^2b}$$

- a) $\frac{2}{5a}$
 b) $\frac{2a}{5}$
 c) $\frac{2a}{5(a+2b)}$
 d) $\frac{2a^2}{3a-b}$

18. Solve the radical equation.

$$2 + \sqrt{3x+1} + \sqrt{x-1} = 0$$

- a) $x = 1$ only
 b) $x = 5$ only
 c) $x = 1, x = 5$
 d) No solution

19. Simplify.

$$\frac{2a^{-1} + 3b^{-2}}{a^{-1} - b^{-1}}$$

- a) $-3 - \frac{2}{a}$
- b) $\frac{a-b}{2a+3b^2}$
- c) $\frac{2b^2+3a}{b(b-a)}$
- d) $\frac{a}{b}$

20. Solve the equation for x .

$$-\frac{1}{8}x^2 + \frac{1}{2}x + \frac{1}{4} = 0$$

- a) $x = 2 + \sqrt{2}, x = 2 - \sqrt{2}$
- b) $x = -2 + \sqrt{3}, x = -2 - \sqrt{3}$
- c) $x = -2 + \sqrt{6}, x = -2 - \sqrt{6}$
- d) $x = 2 + \sqrt{6}, x = 2 - \sqrt{6}$

EXAM II- VERSION A

1. B 2. C 3. B 4. D 5. B 6. A 7. A 8. D 9. A 10. C 11. B 12. C
13. D 14. D 15. B 16. A 17. B 18. D 19. C 20. D