

**Set A: Choose the expression that is equal to the given expression**

1.  $\frac{x^2}{x}$

A. x

B. 1

C. 2

D. 2x

2.  $x^5x^{-5}$

A. 0

B. 1

C. x

D.  $x^{-25}$ 

3.  $3x^3 \cdot 4x^4$

A.  $7x^7$ B.  $12x^{12}$ C.  $7x^{12}$ D.  $12x^7$ 

4.  $x^{-3}$

A.  $x^3$ B.  $-3x$ C.  $\frac{1}{x^3}$ D.  $\frac{1}{x^{-3}}$ 

5.  $3x^{-2}$

A.  $\frac{1}{3x^2}$ B.  $\frac{3}{x^2}$ C.  $\frac{1}{9x^2}$ D.  $\frac{1}{(3x)^2}$ **Set B: Rewrite the given expressions in simplified radical form.**

6.  $\sqrt{10}$

A.  $2\sqrt{5}$ B.  $5\sqrt{2}$ 

C. 3.16

D. Already Simplified

7.  $\sqrt{x} \cdot \sqrt{x}$

A.  $\sqrt{x}$ 

B. x

C.  $\sqrt{2x}$ D.  $x^2$ 

8.  $\sqrt{72}$

A.  $3\sqrt{8}$ B.  $6\sqrt{2}$ C.  $2\sqrt{6}$ 

D. 12

9.  $\sqrt{12} \cdot \sqrt{8}$

A.  $16\sqrt{6}$       B.  $6\sqrt{16}$       C.  $4\sqrt{6}$       D.  $48\sqrt{2}$

10.  $4\sqrt{5} + 6\sqrt{7} - \sqrt{5} + 6\sqrt{7}$

A.  $3\sqrt{5} + 12\sqrt{7}$       B.  $4 + 12\sqrt{7}$       C. 4      D. 232

**Set C: Quadratics**

11. Find the **unsimplified** solutions for  $3x^2 - 4x = 13$ .

a.  $\frac{4 \pm \sqrt{140}}{6}$       b.  $\frac{-4 \pm \sqrt{140}}{6}$       c.  $\frac{4 \pm \sqrt{172}}{6}$       d.  $\frac{-4 \pm \sqrt{172}}{6}$

12. How many solutions does  $2x^2 + 6x + 11 = 0$  have?

a. 0      b. 1      c. 2      d. Infinitely many

13. Find the x-intercepts for  $36 = x^2 - 5x$ .

a. (6,0) and (-6,0)      b.  $(\frac{2 \pm \sqrt{6}}{2}, 0)$       c.  $(\frac{-2 \pm \sqrt{6}}{2}, 0)$       d. (9,0) and (-4,0)

14. Describe the graph of  $y = -2x^2$  as compared to the graph of  $y = x^2$ .

- a. Wider and opens up
- b. Thinner and opens down
- c. Thinner and opens up
- d. Wider and opens down

15. Solve for x:  $4x^2 - 27 = 0$

a.  $\frac{-3\sqrt{3}}{2}, \frac{3\sqrt{3}}{2}$       b.  $\pm \frac{9\sqrt{3}}{4}$       c. No solution      d.  $\pm \frac{27\sqrt{9}}{16}$

16.  $(2x+4)(2x-2) =$

a.  $4x^2 + 4x - 8$

b.  $4x^2 - 4x - 2$

c.  $4x^2 - 8$

d.  $4x^2 - 2$

17.  $(3x-2)^2 =$

a.  $9x^2 - 12x + 4$

b.  $9x^2 + 4$

c.  $9x^2 - 4$

d. Infinitely many

18. Factor:  $10x^2 + 5x$

a.  $(5x+5)(2x+1)$

b.  $2x(5x+3)$

c.  $5x(2x+1)$

d. Infinitely many

**Set D: Factor + Simplify**

19. Simplify completely:  $\frac{x^2 - 5x}{x^2 - 11x + 30}$

(Hint: factor the numerator and denominators, then cancel

out things that appear in both)

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

B.  $\frac{x}{x+16}$

C.  $\frac{-4x}{-9x+20}$

D.  $\frac{x}{x-5}$

E. none of these

**Answers**

Set A: 1) A 2) B 3) D 4) C 5) B

Set B: 1) D 2) B 3) B 4) C 5) A

Set C: 1) C 2) A 3) D 4) B 5) A 6) A 7) A 8) C

Set D: 1) E