

## Test Review - Solving Radicals 2016-17

**Simplify.**

1)  $\sqrt{108}$

2)  $-8\sqrt{96}$

3)  $\sqrt{200x^2y^3}$

4)  $\sqrt{80x^3y^2z^4}$

5)  $\sqrt[3]{-81m^4p^5q^5}$

**Add and subtract the given radical expressions. (3 pts each)**

6)  $-\sqrt{8} - 2\sqrt{6} - 3\sqrt{2}$

7)  $-3\sqrt{8} - 3\sqrt{3} + 3\sqrt{27}$

**Multiply the given radical expressions. (3 pts each)**

8)  $2\sqrt{5} \cdot -2\sqrt{5}$

9)  $2\sqrt{3}(\sqrt{6} + 2)$

10)  $(-\sqrt{2} + 4)(\sqrt{2} - 1)$

11)  $(\sqrt{2} + \sqrt{5})(\sqrt{2} - 2\sqrt{5})$

**Divide the given radical expressions. (3 pts each)**

12)  $\frac{4\sqrt{4}}{5\sqrt{20}}$

13)  $\frac{4 + 3\sqrt{5}}{2\sqrt{7}}$

$$14) \frac{\sqrt{2}}{2 - 2\sqrt{2}}$$

**Solve the following radical equations. (Do not forget to check for extraneous solutions.) (5 pts each)**

$$15) \sqrt{3n} = \sqrt{4n - 1}$$

$$16) \sqrt{3 - 6x} = \sqrt{3x + 3}$$

$$17) n = \sqrt{90 - n}$$

$$18) x = \sqrt{-4 + 4x}$$

$$19) \sqrt{-80 + 18a} = a$$

$$20) -x + \sqrt{4x - 11} = -4$$

$$21) -k + \sqrt{7k + 15} = 1$$

$$22) 4p^{\frac{1}{2}} + 10 = 34$$

**Solve the following radical inequalities. Use number lines and interval notation. (5 pts each)**

$$23) \sqrt{2x + 8} \leq 4$$

$$24) 2\sqrt{x - 4} \geq 8$$

$$25) \sqrt{b - 7} + 6 \leq 12$$

$$26) 10 - \sqrt{2x + 7} \leq 3$$

27) Word Problems

pg 404 8,30,40

pg 433 62

pg 442 74

## Test Review - Solving Radicals 2016-17

**Simplify.**

1)  $\sqrt{108}$

$6\sqrt{3}$

2)  $-8\sqrt{96}$

$-32\sqrt{6}$

3)  $\sqrt{200x^2y^3}$

$10xy\sqrt{2y}$

4)  $\sqrt{80x^3y^2z^4}$

$4z^2xy\sqrt{5x}$

5)  $\sqrt[3]{-81m^4p^5q^5}$

$-3mpq\sqrt[3]{3mp^2q^2}$

**Add and subtract the given radical expressions. (3 pts each)**

6)  $-\sqrt{8} - 2\sqrt{6} - 3\sqrt{2}$

$-5\sqrt{2} - 2\sqrt{6}$

7)  $-3\sqrt{8} - 3\sqrt{3} + 3\sqrt{27}$

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

**Multiply the given radical expressions. (3 pts each)**

8)  $2\sqrt{5} \cdot -2\sqrt{5}$

$-20$

9)  $2\sqrt{3}(\sqrt{6} + 2)$

$6\sqrt{2} + 4\sqrt{3}$

10)  $(-\sqrt{2} + 4)(\sqrt{2} - 1)$

$-6 + 5\sqrt{2}$

11)  $(\sqrt{2} + \sqrt{5})(\sqrt{2} - 2\sqrt{5})$

$-8 - \sqrt{10}$

**Divide the given radical expressions. (3 pts each)**

12)  $\frac{4\sqrt{4}}{5\sqrt{20}}$

$\frac{4\sqrt{5}}{25}$

13)  $\frac{4 + 3\sqrt{5}}{2\sqrt{7}}$

$\frac{4\sqrt{7} + 3\sqrt{35}}{14}$

$$14) \frac{\sqrt{2}}{2-2\sqrt{2}}$$

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

Solve the following radical equations. (Do not forget to check for extraneous solutions.) (5 pts each)

$$15) \sqrt{3n} = \sqrt{4n-1}$$

$$\{1\}$$

$$16) \sqrt{3-6x} = \sqrt{3x+3}$$

$$\{0\}$$

$$17) n = \sqrt{90-n}$$

$$\{9\}$$

$$18) x = \sqrt{-4+4x}$$

$$\{2\}$$

$$19) \sqrt{-80+18a} = a$$

$$\{8, 10\}$$

$$20) -x + \sqrt{4x-11} = -4$$

$$\{9\}$$

$$21) -k + \sqrt{7k+15} = 1$$

$$\{7\}$$

$$22) 4p^{\frac{1}{2}} + 10 = 34$$

$$\{36\}$$

Solve the following radical inequalities. Use number lines and interval notation. (5 pts each)

$$23) \sqrt{2x+8} \leq 4$$

$$-4 < x \leq 4$$

$$24) 2\sqrt{x-4} \geq 8$$

$$x \geq 10$$

$$25) \sqrt{b-7} + 6 \leq 12$$

$$[7, 43]$$

$$26) 10 - \sqrt{2x+7} \leq 3$$

$$[21, \infty)$$

- 27) Word Problems pg 404  
 #8 (.17 km),  
 pg 404 8,30,40 #30 a)  $90 = \sqrt{100 + 64h}$  b) 125 ft,  
 #40 a) about 21.2 mph b) about 68 ft c) no: not linear. skid would take 4 times as long  
 pg 433 62  
 pg 442 74 pg. 433 #62 about 1.82,  
 pg. 442 #74 about 6.13