

Name: _____ Date: _____ Period: _____

Part A: Simplify

1) $\sqrt{605} =$

2) $\sqrt{162} =$

3) $\sqrt{294} =$

4) $\sqrt{16} =$

5) $\sqrt{121} =$

6) $10\sqrt{80} =$

7) $\sqrt{50} =$

8) $\sqrt{36} =$

9) $12\sqrt{252} =$

10) $16\sqrt{27} =$

Part B: Multiply and simplify

1) $3\sqrt{12} \cdot \sqrt{6}$

2) $\sqrt{5} \cdot \sqrt{10}$

3) $\sqrt{6} \cdot \sqrt{6}$

4) $\sqrt{5} \cdot -4\sqrt{20}$

Part C: Square root and simplify the following radicals

1) $(4\sqrt{2})^2$

2) $(10\sqrt{96})^2$

3) $(5\sqrt{45})^2$

4) $(5\sqrt{180})^2$

5) $(2\sqrt{36})^2$

6) $(8\sqrt{27})^2$

7) $(3\sqrt{900})^2$

8) $(2\sqrt{200})^2$

9) $(\sqrt{12})^2$

10) $(7\sqrt{600})^2$

11) $3\sqrt{12} \cdot -4\sqrt{15}$

12) $2\sqrt{2} \cdot 5\sqrt{5}$

Part D: Multiply and simplify

1) $\sqrt{5} \cdot \sqrt{5}$

2) $\sqrt{10} \cdot \sqrt{2}$

3) $\sqrt{8} \cdot \sqrt{8}$

4) $\sqrt{20} \cdot \sqrt{10}$

5) $\sqrt{3} \cdot \sqrt{3}$

6) $\sqrt{5} \cdot \sqrt{12}$

7) $2\sqrt{2} \cdot \sqrt{12}$

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

9) $\sqrt{6} \cdot -2\sqrt{6}$

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

11) $\sqrt{6} \cdot -\sqrt{9}$

12) $\sqrt{5} \cdot -5\sqrt{5}$

Answer key

Part A

$$1) \quad \sqrt{605} = \sqrt{121 \times 5} = \sqrt{121} \times \sqrt{5} = 11\sqrt{5}$$

$$2) \quad \sqrt{162} = \sqrt{81 \times 2} = \sqrt{81} \times \sqrt{2} = 9\sqrt{2}$$

$$3) \quad \sqrt{294} = \sqrt{49 \times 6} = \sqrt{49} \times \sqrt{6} = 7\sqrt{6}$$

$$4) \quad \sqrt{16} = 4$$

$$5) \quad \sqrt{121} = 11$$

$$6) \quad 10\sqrt{80} = 10\sqrt{16 \times 5} = 10 \times \sqrt{16} \times \sqrt{5} = 10 \times 4 \times \sqrt{5} = 40\sqrt{5}$$

$$7) \quad \sqrt{50} = \sqrt{25 \times 2} = \sqrt{25} \times \sqrt{2} = 5\sqrt{2}$$

$$8) \quad \sqrt{36} = 6$$

$$9) \quad 12\sqrt{252} = 12\sqrt{36 \times 7} = 12 \times \sqrt{36} \times \sqrt{7} = 12 \times 6 \times \sqrt{7} = 72\sqrt{7}$$

$$10) \quad 16\sqrt{27} = 16\sqrt{9 \times 3} = 16 \times \sqrt{9} \times \sqrt{3} = 16 \times 3 \times \sqrt{3} = 48\sqrt{3}$$

http://www.math-aids.com/cgi/pdf_viewer_9.cgi?script_name=radicals.pl&perfect=1&nperfect=1&factors=1&language=0&memo=&answer=1&x=102&y=36

Part B

$$1) 3\sqrt{12} \cdot \sqrt{6}$$
$$18\sqrt{2}$$

$$2) \sqrt{5} \cdot \sqrt{10}$$
$$5\sqrt{2}$$

$$3) \sqrt{6} \cdot \sqrt{6}$$
$$6$$

$$4) \sqrt{5} \cdot -4\sqrt{20}$$
$$-40$$

Part C: Simplify the following radicals:

$$1) (4\sqrt{2})^2=32$$

$$2) (10\sqrt{96})^2=9600$$

$$3) (5\sqrt{45})^2=1125$$

$$4) (5\sqrt{180})^2=4500$$

$$5) (2\sqrt{36})^2=144$$

$$6) (8\sqrt{27})^2=1728$$

$$7) (3\sqrt{900})^2=2700$$

$$8) (2\sqrt{200})^2=800$$

$$9) (\sqrt{12})^2=12$$

$$10) (7\sqrt{600})^2=29400$$

$$11) 3\sqrt{12} \cdot -4\sqrt{15} = -72\sqrt{5}$$

$$12) 2\sqrt{2} \cdot 5\sqrt{5} = 10\sqrt{10}$$

Part D

1) $\sqrt{5} \cdot \sqrt{5}$

5

2) $\sqrt{10} \cdot \sqrt{2}$

$2\sqrt{5}$

3) $\sqrt{8} \cdot \sqrt{8}$

8

4) $\sqrt{20} \cdot \sqrt{10}$

$10\sqrt{2}$

5) $\sqrt{3} \cdot \sqrt{3}$

3

6) $\sqrt{5} \cdot \sqrt{12}$

$2\sqrt{15}$

7) $2\sqrt{2} \cdot \sqrt{12}$

$4\sqrt{6}$

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

$2\sqrt{10}$

9) $\sqrt{6} \cdot -2\sqrt{6}$

-12

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

$-2\sqrt{10}$

11) $\sqrt{6} \cdot -\sqrt{9}$

$-3\sqrt{6}$

12) $\sqrt{5} \cdot -5\sqrt{5}$

-25