

Name: _____ Hour: _____ Date: _____

QUICK REVIEW – Sections 9.1 – 9.3

Goals: #1 - I can evaluate and approximate square roots.



#2 - I can solve a quadratic equation by finding square roots.

#3 - I can simplify radical expressions.

List perfect squares below:

2^2	3^2	4^2	5^2	6^2	7^2	8^2	9^2	10^2	11^2	12^2	13^2	14^2	15^2
4	9	16	25	36	49	64	81	100	121	144	169	196	225

Let's keep practicing!: Evaluate the expression.

1. $\sqrt{169}$

13

2. $-\sqrt{81}$

-9

3. $\pm\sqrt{400}$

± 20

4. $-\sqrt{121}$

-11

5. $-\sqrt{196}$

-14

6. $\sqrt{900}$

30

7. $-\sqrt{100}$

-10

8. $\pm\sqrt{64}$

± 8

Determine whether the number is a perfect square.

9. 34

NO

10. 49

Yes

11. 25

Yes

12. 500

NO

13. -9

NO

14. 101

NO

15. 8

NO

16. 81

Yes

Simplify the expression.

$$1. \sqrt{40}$$

$$\sqrt{4} \sqrt{10}$$

$$\boxed{2\sqrt{10}}$$

$$2. -\sqrt{18}$$

$$-\sqrt{9} \sqrt{2}$$

$$\boxed{-3\sqrt{2}}$$

$$3. \sqrt{32}$$

$$\sqrt{16} \sqrt{2}$$

$$\boxed{4\sqrt{2}}$$

$$4. \sqrt{48}$$

$$\sqrt{16} \sqrt{3}$$

$$\boxed{4\sqrt{3}}$$

$$5. \frac{1}{3}\sqrt{45}$$

$$\frac{1}{3} \cdot \sqrt{9} \sqrt{5}$$

$$\frac{1}{3} \cdot 3 \sqrt{5}$$

$$\boxed{\sqrt{5}}$$

$$6. \sqrt{300}$$

$$\sqrt{100} \sqrt{3}$$

$$\boxed{10\sqrt{3}}$$

$$7. \frac{1}{2}\sqrt{128}$$

$$\frac{1}{2} \cdot \sqrt{64} \sqrt{2}$$

$$\frac{1}{2} \cdot 8 \sqrt{2}$$

$$\boxed{4\sqrt{2}}$$

$$8. \sqrt{108}$$

$$\sqrt{36} \sqrt{3}$$

$$\boxed{6\sqrt{3}}$$

$$9. \sqrt{\frac{16}{25}}$$

$$\frac{\sqrt{16}}{\sqrt{25}}$$

$$\boxed{\frac{4}{5}}$$

$$10. \sqrt{\frac{7}{9}}$$

$$\frac{\sqrt{7}}{\sqrt{9}}$$

$$\boxed{\frac{\sqrt{7}}{3}}$$

$$11. -\sqrt{\frac{8}{2}}$$

$$-\frac{\sqrt{8}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

$$-\frac{\sqrt{16}}{\sqrt{4}} = -\frac{4}{2} = \boxed{-2}$$

$$12. \sqrt{\frac{11}{36}}$$

$$\frac{\sqrt{11}}{\sqrt{36}}$$

$$\boxed{\frac{\sqrt{11}}{6}}$$

$$13. \sqrt{\frac{3}{10}}$$

$$\frac{\sqrt{3}}{\sqrt{10}} \cdot \frac{\sqrt{10}}{\sqrt{10}}$$

$$\frac{\sqrt{30}}{\sqrt{100}}$$

$$\boxed{\frac{\sqrt{30}}{10}}$$

$$14. \sqrt{\frac{1}{7}}$$

$$\frac{\sqrt{1}}{\sqrt{7}}$$

$$\frac{1}{\sqrt{7}} \cdot \frac{\sqrt{7}}{\sqrt{7}}$$

$$\frac{\sqrt{7}}{\sqrt{49}}$$

$$\boxed{\frac{\sqrt{7}}{7}}$$

$$15. 2\sqrt{\frac{16}{3}}$$

$$2 \frac{\sqrt{16}}{\sqrt{3}}$$

$$2 \cdot \frac{4}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$\frac{8\sqrt{3}}{\sqrt{9}}$$

$$\boxed{\frac{8\sqrt{3}}{3}}$$

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Solve the equation or write *no real solution*. Write the solutions as integers, if possible. Otherwise, write them as radical expressions.

1. $x^2 = 25$

$$\sqrt{x^2} = \sqrt{25}$$

$$\boxed{x = \pm 5}$$

2. $y^2 = 81$

$$\sqrt{y^2} = \sqrt{81}$$

$$\boxed{y = \pm 9}$$

3. $\frac{3a^2}{3} = \frac{147}{3}$

$$a^2 = 49$$

$$\sqrt{a^2} = \sqrt{49}$$

$$\boxed{a = \pm 7}$$

5. $\frac{2b^2 - 7}{+7} = \frac{-7}{+7}$

$$\frac{2b^2}{2} = \frac{0}{2}$$

$$b^2 = 0$$

$$\sqrt{b^2} = \sqrt{0}$$

$$\boxed{b = 0}$$

7. $\frac{3 - x^2}{-3} = \frac{50}{-3}$

$$\frac{-x^2}{-1} = \frac{47}{-1}$$

$$x^2 = -47$$

$$\sqrt{x^2} = \sqrt{-47}$$

no real solution

9. $\frac{3x^2 - 58}{+58} = \frac{50}{+58}$

$$\frac{3x^2}{3} = \frac{108}{3}$$

$$x^2 = 36$$

$$\sqrt{x^2} = \sqrt{36}$$

$$\boxed{x = \pm 6}$$

4. $\frac{x^2 + 4}{-4} = \frac{16}{-4}$

$$x^2 = 14$$

$$\sqrt{x^2} = \sqrt{14}$$

$$\boxed{x = \pm \sqrt{14}}$$

6. $\frac{16 - x^2}{-16} = \frac{12}{-16}$

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

$$x^2 = 4$$

$$\sqrt{x^2} = \sqrt{4}$$

$$\boxed{x = \pm 2}$$

8. $\frac{8 - 2x^2}{-8} = \frac{-33}{-8}$

$$\frac{-2x^2}{-2} = \frac{-41}{-2}$$

$$x^2 = 20.5$$

$$\sqrt{x^2} = \sqrt{20.5}$$

10. $\frac{5x^2 + 20}{-20} = \frac{4}{-20}$

$$\frac{5x^2}{5} = \frac{-16}{5}$$

$$x^2 = -3.2$$

$$\sqrt{x^2} = \sqrt{-3.2}$$

no real solution