

Name: _____

Date: _____

Notes: Simplifying Radicals

Vocab Breakdown

Radical or Root:

Simplifying Radicals

$$\sqrt{18}$$

Step 1: Find the largest perfect square that divides the radicand.

Step 2: Rewrite the square root as the product of the square root of the perfect square and the other factor.

Step 3: Find the square root of the perfect square.

$$\sqrt{48}$$

$$5\sqrt{63}$$

$$\sqrt{128}$$

$$\sqrt{289}$$

$$\frac{4-\sqrt{320}}{4}$$

$$\frac{5+\sqrt{72}}{2}$$

$$\frac{4+\sqrt{1352}}{2}$$

What if we have variables?

$$\sqrt{80m^{10}}$$

$$\sqrt{54n^7}$$

$$-x\sqrt{75x^3}$$

$$\sqrt{45x^7y^4}$$

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Classwork: Simplifying Radicals

1. $\sqrt{8}$	2. $\sqrt{40}$	3. $\sqrt{98}$	4. $\frac{6-\sqrt{32}}{2}$
5. $3\sqrt{48}$	6. $\sqrt{180}$	7. $\frac{4+\sqrt{432}}{4}$	8. $\frac{1}{3}\sqrt{252}$
9. $\sqrt{y^2}$	10. $\sqrt{16d^2}$	11. $\frac{14-\sqrt{150}}{7}$	12. $\sqrt{81w^2}$
13. $\sqrt{r^8s^6}$	14. $\sqrt{x^4y^2}$	15. $\sqrt{4y^2}$	16. $\sqrt{36m^2}$

17)

When $5\sqrt{20}$ is written in simplest radical form, the result is $k\sqrt{5}$. What is the value of k ?

- 1) 20
- 2) 10
- 3) 7
- 4) 4

18)

What is $2\sqrt{45}$ expressed in simplest radical form?

- 1) $3\sqrt{5}$
- 2) $5\sqrt{5}$
- 3) $6\sqrt{5}$
- 4) $18\sqrt{5}$

19)

What is $\frac{\sqrt{32}}{4}$ expressed in simplest radical form?

- 1) $\sqrt{2}$
- 2) $4\sqrt{2}$
- 3) $\sqrt{8}$
- 4) $\frac{\sqrt{8}}{2}$

20)

Theo determined that the correct length of the hypotenuse of the right triangle in the accompanying diagram is $\sqrt{20}$. Fiona found the length of the hypotenuse to be $2\sqrt{5}$. Is Fiona's answer also correct? Justify your answer.

