

# 6.4

## Adding Two Expressions with Square Roots

### • Example 1

Simplify and combine terms.

$$2\sqrt{8} + 6\sqrt{32}$$

We first write the radicands as products involving perfect squares.

$$\begin{aligned} 2\sqrt{8} + 6\sqrt{32} &= 2\sqrt{2 \times 2^2} + 6\sqrt{4^2 \times 2} \\ &= 2 \times \sqrt{2} \times \sqrt{2^2} + 6 \times \sqrt{4^2} \times \sqrt{2} \\ &= 2 \times \sqrt{2} \times 2 + 6 \times 4 \times \sqrt{2} \\ &= 4\sqrt{2} + 24\sqrt{2} \\ &= 28\sqrt{2} \end{aligned}$$

### • • • CHECK YOURSELF 1

Simplify and combine terms.

$$8\sqrt{18} + \sqrt{50}$$

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### • • • CHECK YOURSELF ANSWER

$$1. 29\sqrt{2}.$$

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# 6.4 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

Simplify and combine terms.

1.  $\sqrt{12} + 3\sqrt{48}$

2.  $\sqrt{20} + 8\sqrt{5}$

3.  $\sqrt{27} + 4\sqrt{12}$

4.  $9\sqrt{32} + 14\sqrt{8}$

5.  $\sqrt{24} + \sqrt{54}$

6.  $2\sqrt{28} + \sqrt{63}$

7.  $\sqrt{80} + \sqrt{45}$

8.  $\sqrt{40} + 3\sqrt{90}$

9.  $\sqrt{96} + \sqrt{216}$

10.  $\sqrt{56} + \sqrt{14}$