

## RADICALS PRACTICE

### REMINDERS

You can add and subtract radicals when the radicands (numbers under the root sign) are the same.

You can multiply radicals together by multiplying the radicands.

You can simplify radicals by factoring and finding roots of factors

You can simplify rational expressions by simplifying the coefficients separately from the radicands.

### Simplify

1.  $\sqrt{81}$

2.  $\sqrt{16}$

3.  $\sqrt{48}$

4.  $\sqrt{90}$

5.  $\sqrt{50}$

6.  $\sqrt{18}$

7.  $\sqrt{108x^2y^3}$

8.  $\sqrt{50x^5y^9}$

9.  $\sqrt{102x^4y^8}$

10.  $\sqrt{27xy^3}$

### Multiply and simplify

11.  $\sqrt{10} \cdot \sqrt{4}$

12.  $\sqrt{15} \cdot \sqrt{2}$

13.  $2\sqrt{5} \cdot 3\sqrt{8}$

14.  $3\sqrt{5} \cdot 2\sqrt{14}$

15.  $\sqrt{17} \cdot \sqrt{40}$

16.  $3\sqrt{7} \cdot 2\sqrt{14}$

17.  $2\sqrt{12} \cdot 5\sqrt{6}$

18.  $5\sqrt{5} \cdot 2\sqrt{35}$

19.  $7\sqrt{7} \cdot 2\sqrt{6}$

20.  $6\sqrt{21} \cdot \sqrt{28}$

21.  $2\sqrt{5} \cdot 4\sqrt{7}$

### Divide and simplify.

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

23.  $\frac{\sqrt{96}}{\sqrt{2}}$

24.  $\frac{\sqrt{x^2}}{\sqrt{36}}$

25.  $\frac{\sqrt{30x}}{\sqrt{10x}}$

26.  $\frac{3\sqrt{12x^2}}{4\sqrt{18x^3}}$

27.  $\frac{x\sqrt{128}}{\sqrt{20x^3}}$

28.  $\frac{7\sqrt{36x^3}}{\sqrt{294x}}$

### Add or subtract and simplify.

29.  $\sqrt{5} + 2\sqrt{5}$

30.  $3\sqrt{7} - 2\sqrt{7}$

31.  $9\sqrt{12} + 3\sqrt{27}$

32.  $3\sqrt{14} - 2\sqrt{126}$

33.  $4\sqrt{128} + 2\sqrt{18}$

34.  $\sqrt{45} - \sqrt{20}$

35.  $2\sqrt{8} + 6\sqrt{72}$

36.  $3\sqrt{3} + 2\sqrt{27}$

37.  $8\sqrt{80} - 2\sqrt{45}$

38.  $3\sqrt{72} - 6\sqrt{98}$

39.  $9\sqrt{180} + 7\sqrt{80}$

40.  $4\sqrt{343} + 2\sqrt{567}$