

Name Answers

Date _____

8.1 – Simplifying Square Roots

Simplify

1) $\sqrt{45} = 3\sqrt{5}$

2) $\sqrt{32} = 4\sqrt{2}$

3) $\sqrt{50} = 5\sqrt{2}$

4) $\sqrt{28} = 2\sqrt{7}$

5) $\sqrt{200} = 10\sqrt{2}$

6) $\sqrt{242} = 11\sqrt{2}$

7) $\sqrt{162} = 9\sqrt{2}$

8) $\sqrt{75} = 5\sqrt{3}$

9) $\sqrt{1000} = 10\sqrt{10}$

10) $\sqrt{72} = 6\sqrt{2}$

11) $\sqrt{44} = 2\sqrt{11}$

12) $\sqrt{80} = 4\sqrt{5}$

13) $2\sqrt{24} = 2 \cdot 2\sqrt{6} = 4\sqrt{6}$

14) $6\sqrt{125} = 6 \cdot 5\sqrt{5} = 30\sqrt{5}$

15) $3\sqrt{98} = 3 \cdot 7\sqrt{2} = 21\sqrt{2}$

16) $9\sqrt{18} = 9 \cdot 3\sqrt{2} = 27\sqrt{2}$

17) $5\sqrt{40} = 5 \cdot 2\sqrt{10} = 10\sqrt{10}$

18) $15\sqrt{27} = 15 \cdot 3\sqrt{3} = 45\sqrt{3}$

19) $\sqrt{200} + \sqrt{128}$

$$= 10\sqrt{2} + 8\sqrt{2} = 18\sqrt{2}$$

20) $\sqrt{6} + \sqrt{24}$

$$= \sqrt{6} + 2\sqrt{6} = 3\sqrt{6}$$

21) $\sqrt{150} - \sqrt{24}$

$$= 5\sqrt{6} - 2\sqrt{6} = 3\sqrt{6}$$

22) $\sqrt{242} + \sqrt{8}$

$$= 11\sqrt{2} + 2\sqrt{2} = 13\sqrt{2}$$

23) $9\sqrt{13} - 6\sqrt{11} + \sqrt{13}$

$$= 9\sqrt{13} - 6\sqrt{11} + \sqrt{13} = 10\sqrt{13} - 6\sqrt{11}$$

24) $-3\sqrt{72} + 6\sqrt{52} - 7\sqrt{128}$

$$= -18\sqrt{2} + 12\sqrt{13} - 56\sqrt{2} = -74\sqrt{2} + 12\sqrt{13}$$

25) $-\sqrt{338} - \sqrt{200} + \sqrt{162}$

$$= -13\sqrt{2} - 10\sqrt{2} + 9\sqrt{2} = -14\sqrt{2}$$

$$26) (3\sqrt{5})^2$$

$$= 45$$

$$27) \sqrt{3} \cdot \sqrt{3} \cdot \sqrt{4}$$

$$= 6$$

$$28) 5\sqrt{7} \cdot 2\sqrt{7}$$

$$= 70$$

$$29) \sqrt{3} \cdot \sqrt{27}$$

$$\sqrt{3} \cdot 3\sqrt{3}$$

$$= 9$$

$$30) \sqrt{\frac{4}{9}} \cdot \sqrt{\frac{18}{4}}$$

$$= \sqrt{2}$$

$$31) \sqrt{\frac{7}{3}} \cdot \sqrt{\frac{3}{28}}$$

$$= \sqrt{\frac{1}{4}} = \frac{1}{2}$$

$$32) \frac{1}{\sqrt{3}}$$

$$= \frac{\sqrt{3}}{3}$$

$$33) \frac{3\sqrt{3}}{\sqrt{3}}$$

$$= \frac{3\sqrt{3}}{3}$$

$$= \sqrt{3}$$

$$34) \frac{8\sqrt{6}}{\sqrt{6}}$$

$$= \frac{8\sqrt{6}}{6}$$

$$= \frac{4\sqrt{6}}{3}$$

$$35) \frac{1\sqrt{2}}{5\sqrt{2}}$$

$$\frac{\sqrt{2}}{10}$$

$$36) \frac{4\sqrt{2}}{\sqrt{2}}$$

$$= \frac{4\sqrt{2}}{2}$$

$$= 2\sqrt{2}$$

$$37) \frac{\sqrt{5}\sqrt{3}}{\sqrt{3}}$$

$$= \frac{\sqrt{15}}{3}$$

$$38) \frac{\sqrt{3}\sqrt{6}}{\sqrt{6}}$$

$$= \frac{\sqrt{18}}{6}$$

$$= \frac{3\sqrt{2}}{6} = \frac{\sqrt{2}}{2}$$

$$39) \frac{2\sqrt{3}\sqrt{2}}{\sqrt{2}}$$

$$= \frac{2\sqrt{6}}{2}$$

$$= \sqrt{6}$$

Find the square root of each number by using the calculator. Round your answer to the nearest tenth.

$$40) 56$$

$$\approx 7.5$$

$$41) 12$$

$$\approx 3.5$$

$$42) 92$$

$$\approx 9.6$$