

#1-3, Identify the integers each radical falls between.

1. $\sqrt{43}$ 6-7

2. $\sqrt{154}$ 12-13

3. $-\sqrt{15}$ -3 - -4

#4-9, Review: Simplify each radical.

4. $\sqrt{63}$ $3\sqrt{7}$

5. $-5\sqrt{128}$
 $\begin{matrix} 2 & 4 & 4 \\ 2 & 8 & 8 \end{matrix}$ $(-40\sqrt{2})$

6. $\frac{1}{3}\sqrt{108}$ $\frac{54.2}{3}$ $\frac{2332.2}{3}$ $(2\sqrt{3})$

7. $3\sqrt{8} - 5\sqrt{3} + \sqrt{2}$
 $6\sqrt{2}$
 $7\sqrt{2} - 5\sqrt{3}$

8. $\sqrt{48} + 10\sqrt{27}$
 $4\sqrt{3} + 30\sqrt{3}$
 $(34\sqrt{3})$

9. $\sqrt{\frac{27}{81}}$ $\frac{3\sqrt{3}}{9}$
 $(\frac{\sqrt{3}}{3})$

#10-24, Multiply or use powers on each radical expression.

10. $\sqrt{6} \cdot \sqrt{18}$
 $\sqrt{6} \cdot 3\sqrt{2}$
 $3\sqrt{12}$
 $6\sqrt{3}$

11. $4\sqrt{2} \cdot -3\sqrt{8}$
 $-12\sqrt{16}$
 (-48)

12. $(6\sqrt{12})(\sqrt{8})$
 $6\sqrt{96}$
 $24\sqrt{6}$

13. $(\sqrt{3})(\sqrt{15})$
 $\sqrt{45}$
 $(3\sqrt{5})$

14. $\sqrt{2}(3\sqrt{2}+5)$
 $3\sqrt{4} + 5\sqrt{2}$
 $(6 + 5\sqrt{2})$

15. $(3 - \sqrt{11})(3 + \sqrt{11})$
 $9 + 3\sqrt{11} - 3\sqrt{11} - \sqrt{121}$
 $9 - \sqrt{121}$
 $9 - 11$
 (-2)

16. $(7\sqrt{10})^2$
 $49 \cdot 10$
 (490)

17. $(5\sqrt{2})^2$
 (50)

18. $(3\sqrt{2} + 1)(5\sqrt{3} - 8)$
 $15\sqrt{6} - 24\sqrt{2} + 5\sqrt{3} - 8$

19. $3\sqrt{5}(\sqrt{15} - 1)$
 $3\sqrt{75} - 3\sqrt{5}$
 $15\sqrt{3} - 3\sqrt{5}$

20. $(3\sqrt{7})^2$
 $9 \cdot 7$
 (63)

21. $(\frac{1}{3}\sqrt{5})^2$
 $(\frac{5}{9})$

22. $(6 - 2\sqrt{5})^2$
 $(6 - 2\sqrt{5})(6 - 2\sqrt{5})$
 $36 - 12\sqrt{5} - 12\sqrt{5} + 4\sqrt{25}$
 $56 - 24\sqrt{5}$

23. $(2\sqrt{3})(5\sqrt{3})$
 $10\sqrt{9}$
 (30)

24. $(2\sqrt{3} - 5)^2$
 $(2\sqrt{3} - 5)(2\sqrt{3} - 5)$
 $4\sqrt{9} - 10\sqrt{3} - 10\sqrt{3} + 25$
 $12 - 20\sqrt{3} + 25$
 $(37 - 20\sqrt{3})$

#25- 28, Rationalize the denominator and simplify.

25. $\frac{\sqrt{3}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}}$ $(\frac{\sqrt{15}}{5})$

26. $\frac{\sqrt{3}}{\sqrt{25}}$ $(\frac{\sqrt{3}}{5})$

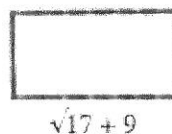
27. $\frac{\sqrt{8}}{\sqrt{27}}$ $\frac{2\sqrt{2}}{3\sqrt{3}}$
 $(\frac{2\sqrt{6}}{9})$

28. $2\sqrt{\frac{9}{8}}$ $\frac{6}{2\sqrt{2}}$ $\frac{3}{\sqrt{2}}$ $(\frac{3\sqrt{2}}{2})$

29. Find the perimeter and area of the rectangle.

a. Perimeter = $(16\sqrt{7} + 18)$

b. Area = $2\sqrt{7}(\sqrt{17} + 9) = (18\sqrt{17} + 34)$



$\sqrt{68} = 2\sqrt{17}$

$\sqrt{17} + 9$