9.1 Quiz Review p. 485: 5, 7, 9, 17, 19, 23, 25, 27, 45, 47, 51, 55, 57, 73, 77, 79, 83, 87

5. $\sqrt{19}$

$1 \hat{} 19$

yes

7. $\sqrt{48}$

$\sqrt{3} \cdot \sqrt{16}$

$4 \cdot 4$

$4\sqrt{3}$ no

9. $\frac{5}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$\frac{5\sqrt{2}}{2}$ no

17. $\sqrt{1256}$

$\sqrt{25} \cdot \sqrt{5} \cdot \sqrt{6}$

$5 \cdot 5$

$5\sqrt{56}$

19. $-\sqrt{81m^3}$

$-1(\sqrt{9} \cdot \sqrt{9} \cdot \sqrt{mmm})$

$-1 \cdot 9 \cdot m\sqrt{m}$

$-9m\sqrt{m}$

23. $-\sqrt{\frac{23}{64}} = \frac{-\sqrt{23}}{\sqrt{64}} = \frac{-\sqrt{23}}{8}$

$8 \hat{} 8$

25. $\sqrt{\frac{a^3}{49}} = \frac{\sqrt{aaa}}{\sqrt{7 \cdot 7}} = \frac{a\sqrt{9}}{7}$

27. $\sqrt{\frac{100}{4x^2}} = \frac{\sqrt{100}}{\sqrt{4x^2}} = \frac{\sqrt{10 \cdot 10}}{\sqrt{2 \cdot 2}\sqrt{xx}}$

$= \frac{10}{12x} = \frac{5}{x}$

45. $\frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{\sqrt{4}} = \frac{2\sqrt{2}}{2}$

$= \sqrt{2}$

47. $\frac{\sqrt{5}}{\sqrt{48}} = \frac{\sqrt{5}}{\sqrt{3}\sqrt{16}} = \frac{\sqrt{5}}{4\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{15}}{4\sqrt{9}} = \frac{\sqrt{15}}{4 \cdot 3} = \frac{\sqrt{15}}{12}$

51. $\sqrt{\frac{3d^2}{5}} = \frac{\sqrt{3}\sqrt{dd}}{\sqrt{5}} = \frac{d\sqrt{3}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{d\sqrt{3 \cdot 5}}{\sqrt{5 \cdot 5}} = \frac{d\sqrt{15}}{5}$

55. $\frac{1}{(\sqrt{7}+1)}\frac{(-\sqrt{7}+1)}{(-\sqrt{7}+1)} = \frac{-\sqrt{7}+1}{-6} = \boxed{\frac{1-\sqrt{7}}{-6}}$ OR $\boxed{\frac{\sqrt{7}-1}{6}}$

$-\sqrt{49}+\sqrt{7}-\sqrt{7}+1$

$-7+1$

-6

57. $\frac{\sqrt{10}}{(7-\sqrt{2})}\frac{(7+\sqrt{2})}{(7+\sqrt{2})} = \frac{7\sqrt{10}+\sqrt{20}}{47} \overset{\sqrt{20}<\sqrt{25}}{=} \boxed{\frac{7\sqrt{10}+2\sqrt{5}}{47}}$

$49+7\sqrt{2}-7\sqrt{2}-\sqrt{4}$

$49-2$

47

75. $\sqrt{3}-2\sqrt{2}+6\sqrt{2}$

$\boxed{\sqrt{3}+4\sqrt{2}}$

77. $2\sqrt{6}-5\sqrt{54} < \sqrt{6}$

$2\sqrt{6}-5\sqrt{9}\sqrt{6}$ (3·3)

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

$2\sqrt{6}-15\sqrt{6}$

$\boxed{-13\sqrt{6}}$

79. $\sqrt{12}+6\sqrt{3}+2\sqrt{6}$

$\sqrt{4}\cdot\sqrt{3}+6\sqrt{3}+2\sqrt{6}$

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

$\boxed{8\sqrt{3}+2\sqrt{6}}$

83. $\sqrt{2}(\sqrt{45}+\sqrt{5})$

$\sqrt{90}+\sqrt{10}$

$\sqrt{9\cdot 10}+\sqrt{10}$ (3·3)

$3\sqrt{10}+1\sqrt{10}$

$\boxed{4\sqrt{10}}$

87. $(4\sqrt{2}-\sqrt{98})^2 = (4\sqrt{2}-\sqrt{98})(4\sqrt{2}-\sqrt{98})$

$14^2=196$ $16\sqrt{4}-4\sqrt{196}-4\sqrt{196}+\sqrt{9604}$ (2, 14·14, 98·98)

$32-8\sqrt{196}+98$ (14·14)

$32-8(14)+98 = \boxed{18}$