

AA PREP: OPERATIONS WITH RADICALS (QUOTIENTS) LECTURE

Simplify. Rationalize the denominator.

$$1) \frac{12}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{12\sqrt{3}}{\sqrt{3 \cdot 3}} = \frac{12\sqrt{3}}{3} = 4\sqrt{3}$$

$$2) \frac{18}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{18\sqrt{2}}{2} = 9\sqrt{2}$$

$$3) \sqrt{\frac{5}{11}} = \frac{\sqrt{5}}{\sqrt{11}} \cdot \frac{\sqrt{11}}{\sqrt{11}} = \frac{\sqrt{55}}{11}$$

$$4) \sqrt{\frac{7}{3}} = \frac{\sqrt{7}}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{21}}{3}$$

$$5) \sqrt{\frac{4 \div 4}{60 \div 4}} = \sqrt{\frac{1}{15}} = \frac{\sqrt{1}}{\sqrt{15}} = \frac{1}{\sqrt{15}} \cdot \frac{\sqrt{15}}{\sqrt{15}} = \frac{\sqrt{15}}{15}$$

$$6) \sqrt{\frac{20 \div 10}{50 \div 10}} = \sqrt{\frac{2}{5}} = \frac{\sqrt{2}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{10}}{5}$$

$$7) \frac{\sqrt{6} \div 3}{\sqrt{27} \div 3} = \frac{\sqrt{2}}{\sqrt{9}} = \frac{\sqrt{2}}{3}$$

$$8) \frac{\sqrt{30} \div 6}{\sqrt{42} \div 6} = \frac{\sqrt{5}}{\sqrt{7}} \cdot \frac{\sqrt{7}}{\sqrt{7}} = \frac{\sqrt{35}}{7}$$

$$9) \frac{4\sqrt{3}}{20\sqrt{7}} = \frac{\sqrt{3}}{5\sqrt{7}} \cdot \frac{\sqrt{7}}{\sqrt{7}} = \frac{\sqrt{21}}{5 \cdot 7} = \frac{\sqrt{21}}{35}$$

$$10) \frac{6\sqrt{13}}{18\sqrt{2}} = \frac{\sqrt{13}}{3\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{26}}{3 \cdot 2} = \frac{\sqrt{26}}{6}$$

$$11) \frac{2 \cdot 12\sqrt{8} \div 8}{1 \cdot 6\sqrt{24} \div 8} = \frac{2\sqrt{1}}{\sqrt{3}} = \frac{2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$$

$$12) \frac{4 \cdot 28\sqrt{15} \div 4}{3 \cdot 21\sqrt{40} \div 4} = \frac{4\sqrt{3}}{3\sqrt{10}} = \frac{4\sqrt{3}}{6\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{6}}{3 \cdot 2} = \frac{2\sqrt{6}}{6} = \frac{\sqrt{6}}{3}$$