Test Review:

Simplifying Radical Expressions

$\sqrt{}$ → square root

What is a radical? (and what does it mean?)

$\sqrt{x \cdot y} = \sqrt{x} \cdot \sqrt{y}$

Properties:
Product Property

$$\sqrt{\frac{x}{y}} = \frac{\sqrt{x}}{\sqrt{y}}$$

Quotient Property

Using the Properties:

$$\sqrt{45} = \sqrt{9\cdot 5} = \sqrt{9}\cdot\sqrt{5} = \boxed{3\sqrt{5}}$$

$$\sqrt{3}\cdot\sqrt{21} = \sqrt{3\cdot 21} = \sqrt{3\cdot 3\cdot 7} = \sqrt{3\cdot 3}\cdot\sqrt{7} = \boxed{3\sqrt{7}}$$

$$\sqrt{25n^3} = \sqrt{25}\cdot\sqrt{n^3} = 5\sqrt{n^2\cdot n} = 5\sqrt{n^2}\sqrt{n} = \boxed{5n\sqrt{n}}$$

$$\sqrt{\frac{5}{49}} = \frac{\sqrt{5}}{\sqrt{49}} = \boxed{\frac{\sqrt{5}}{7}}$$

Rationalize the Denominator:

$$\sqrt{\frac{3}{50}} = \frac{\sqrt{3}}{\sqrt{25\cdot 2}} = \boxed{\frac{\sqrt{3}}{5\sqrt{2}}}$$

Eliminate radicals in the denominator of a fraction...

$$\frac{\sqrt{3}}{5\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{3}\cdot\sqrt{2}}{5\sqrt{2}\cdot\sqrt{2}} = \frac{\sqrt{6}}{5\sqrt{2\cdot 2}} = \frac{\sqrt{6}}{5\cdot 2} = \boxed{\frac{\sqrt{6}}{10}}$$

Add and Subtract Radicals:

$4\sqrt{5} - 7\sqrt{5}$

$4x - 7x$

$-3x$

$\sqrt{5}(4-7)$

$\sqrt{5}(-3)$

$\boxed{-3\sqrt{5}}$

Use commutative and/or distributive properties to rearrange

Simplify

10. $\sqrt{\frac{16}{81}}$

$\sqrt{\frac{16}{81}} = \frac{\sqrt{16}}{\sqrt{81}} = \boxed{\frac{4}{9}}$

$\sqrt{16} = \sqrt{4 \cdot 4} = 4$

11. $\sqrt{\frac{5}{49}}$

$\sqrt{\frac{5}{49}} = \frac{\sqrt{5}}{\sqrt{49}} = \boxed{\frac{\sqrt{5}}{7}}$

12. $\sqrt{\frac{x^2}{144}}$

$\sqrt{\frac{x^2}{144}} = \frac{\sqrt{x^2}}{\sqrt{144}} = \boxed{\frac{x}{12}}$

$\sqrt{x^2} = x$

$x \cdot x = x^2$

$12 \cdot 12 = 144$

$\sqrt{12} \cdot \sqrt{12} = \sqrt{12^2} = 12$

$$\frac{2}{\sqrt{p}} \cdot \frac{\sqrt{p}}{\sqrt{p}} =$$

$$\frac{2\sqrt{p}}{\sqrt{p}\cdot\sqrt{p}} =$$

$$\frac{2\sqrt{p}}{\sqrt{p^2}} = \boxed{\frac{2\sqrt{p}}{p}}$$

17. $\frac{1}{\sqrt{3y}} \cdot \frac{\sqrt{3y}}{\sqrt{3y}}$

$$\frac{\sqrt{3y}}{\sqrt{(3y)^2}} =$$

$$\boxed{\frac{\sqrt{3y}}{3y}}$$

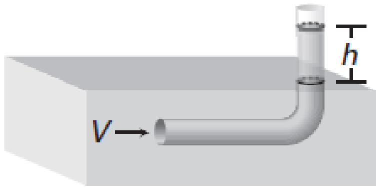
18. $\frac{9}{\sqrt{2x}}$

$\sqrt{5}(8\sqrt{10} + 1)$

23. $(2\sqrt{3} + 5)^2$

24. $(6 + \sqrt{3})(6 - \sqrt{3})$

Water Flow You can measure the speed of water by using an L-shaped tube. The speed V of the water (in miles per hour) is given by the function $V = \sqrt{\frac{5}{2}h}$ where h is the height of the column of water above the surface (in inches).



a. If you use the tube in a river and find that h is 6 inches, what is the speed of the water? Round your answer to the nearest hundredth.

b. If you use the tube in a river and find that h is 8.5 inches, what is the speed of the water? Round your answer to the nearest hundredth.

Homework:

p.723 3-21 (odd), 27-33 (odd),

35-45 (odd), 67