

Test #4

Directions: Please show all your work since partial credit is given. Answers without the necessary work will receive no credit. And remember, have fun!

1. *Simplify* the following rational expressions.

a) $\frac{3w}{w+2} + \frac{5}{w-3}$ _____

b) $\frac{1 - \frac{81}{y^2}}{1 + \frac{9}{y}}$ _____

2. *Solve* the following rational equations.

a) $\frac{2}{p^2 - 2p} = \frac{3}{p^2 - p}$

b) $\frac{v}{v-3} = \frac{1}{v-3} + 2$

3. Steve can paddle his canoe 2 miles upstream against the current in the same time it would take him to paddle 6 miles downstream. Steve can paddle 2 mph in still water. What is the speed of the current?

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4. It takes Brad 2 hours to mow his lawn, while it takes Gail 3 hours to mow the same lawn. How long will it take them to mow the lawn if they do the job together?

5. Simplify the following radical expressions.

a) $\sqrt{\frac{4}{25v}}$

b) $3\sqrt{360x^5} - 4x^2\sqrt{490x}$

c) $3\sqrt{7}(2\sqrt{7} + 4\sqrt{5})$ _____

d) $\sqrt[4]{160a^7b^5}$ _____

e) $(12 - \sqrt{r})^2$ _____

6. Solve the following radical equations.

a) $\sqrt{2y+1} + y = 7$ _____

b) $\sqrt{x} - 4 = \sqrt{x-32}$ _____

7. Simplify the following exponential expressions.

a) $\left(\frac{-64}{27}\right)^{2/3}$ _____

b) $(m^3 n^{1/4})^{2/3}$ _____