

Algebra Workshop

Name: _____

Homework 4

1. A store increases all of their prices by 10%. If a book originally costed \$7.50, how much does it cost after the price increase?

2. In 1940, a dozen eggs cost 17 cents. In 1950, a dozen eggs cost 39 cents. By what percent did the price of eggs increase?

3. The population of Kingston in 1960 was 29,260. In 1970, the population was 25,544. By what percent did the population decrease from 1960 to 1970?

4. When a person wins money on a game show, they have to pay taxes on the money. Suppose that a game show wishes to give a contestant an amount of money so that after paying taxes, the contestant will have won exactly 1 million dollars. If the contestant will pay a 20% tax on the money, how much money should the game show give the contestant?

5. Solve the following equations:

(a) $\frac{x}{3} + \frac{x}{2} = 5$

(b) $x + \frac{x}{4} = 3$

(c) $\frac{3}{x} + \frac{1}{2x} = 1$

(d) $\frac{1}{2x-3} = 4$

6. Simplify by combining the fractions:

(a) $\frac{x}{y} + \frac{1}{z}$

(b) $\frac{2}{x} - \frac{y}{z}$

7. Simplify the following expression:

$$\frac{\frac{1}{x} - \frac{1}{y}}{z}$$

8. Simplify the following expression:

$$\frac{x}{\frac{1}{y} - \frac{1}{z}}$$

9. Simplify by combining the fractions:

(a) $\frac{2}{x^2} - \frac{3}{x}$

(b) $\frac{1}{x+3} + \frac{2}{x-1}$

(c) $\frac{x}{2x-1} - \frac{1}{x+4}$