

Homework 4 - Math 105

Name: _____

Do not use a calculator unless it says (Calc) next to the problem.

1. I am thinking of a number. My number is 7 more than half of my number. What is my number?

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2. Where do the lines $y = 3x - 5$ and $y = -2x + 10$ cross?

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3. The cost of renting a car is \$45 plus an additional \$0.25 per mile you drive. If you have \$100 to spend on the car rental, how far can you drive?

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4. Solve $\frac{3}{x-6} = \frac{5}{x}$.

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5. Suppose you have to solve $4x + 10 = \frac{x}{3} + 21$ on a multiple choice exam with the following options:

A. 1 B. 2 C. 3 D. 4 E. 5

How could you tell that the correct answer is (C) *without solving the equation or testing any of the choices?*

6. Solve $\frac{2}{x-3} - \frac{1}{x+1} = \frac{x}{(x-3)(x+1)}$.

7. Find all values of z such that $\frac{2}{z} + 5 = \frac{5}{z} - 4$.

8. Bob has an equal number of quarters, nickles, and dimes in a bag. The total amount of money in the bag is a whole number of dollars. What is the smallest amount of money Bob could have?

9. Solve $\frac{3}{1+\sqrt{y}} + \frac{2}{1+\sqrt{y}} = 1$.

10. Where do the curves $y = \frac{1}{x} + 3$ and $y = 8 - \frac{1}{x}$ cross?
