

Problem 5.7:

(b) Express $\frac{2x+7}{6} - \frac{9-2x}{9}$ as a single fraction.

□

Problem 5.20: When you add 12 to a number and then divide the sum by 13, you get the same result as when you subtract 13 from the number and then divide the difference by 12. What is the number? (Source: *MATHCOUNTS*)

Problem 5.24: Three years ago, I was two-thirds as old as I will be eight years from now. How old am I now?

Problem 5.25: In slurfball, a fizzle is worth 2 points and a globbo is worth 5 points. Kumquare and the Wazzits recently played for the Intergalactic Slurfball Championship. During the game, Kumquare scored eight more fizzles than the Wazzits, but scored five fewer globbos than the Wazzits. Together the two teams scored 93 points total. What was the final score?

5.5.3 Half of my favorite number is greater than the sum of 6 and my favorite number. What are the possible values of my number?

EEA

5.36 Solve for x : $\frac{1}{10^1} + \frac{1}{10^2} + \frac{1}{10^3} + \frac{1}{10^4} + \frac{1}{10^5} + \frac{1}{10^6} = \frac{x}{10^6}$. (Source: MATHCOUNTS)

(d) For what value of x can we not determine a value of the expression $\frac{x-2}{2x+7}$? **Hints:** 41

5.47 The five members of the computer club decided to buy a used computer, dividing up the cost equally. Later, three new members joined the club and agreed to pay their fair share of the

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purchase price. This resulted in a saving of \$15 for each of the original five members. What was the price of the used computer? (Source: MOEMS)

(c) $\frac{3}{4}(3 - x) \leq -\frac{2}{3}(2 + x)$

- (a) What values of x satisfy $2 - 3x \geq 6x - 3 - 9x$?
- (b) What values of x satisfy $9 + 2x - 5x \geq -x + 12 - 2x$?

5.55 Terry finds a pile of money with at least \$500. If she puts \$100 of the pile in her left pocket, gives away $\frac{2}{3}$ of the rest of the pile, and then puts the remaining money from the pile in her right pocket, she'll have more money than if she instead gave away \$500 of the original pile and kept the rest. What are the possible values of the original pile of money?

5.57 What values of n satisfy the inequality $\frac{1}{n} \geq 6$?

NEQUALITIES

5.67★ Graph on a number line the values of x that satisfy $7 + x \geq 2x + 3 > 12 - x$. **Hints:** 26

5.68★ Graph on the number line all values of x that satisfy $\frac{2x + 2}{x + 7} \geq 0$. **Hints:** 132

(e)★ Evaluate the sum $\frac{1}{1 \cdot 2} + \frac{1}{2 \cdot 3} + \frac{1}{3 \cdot 4} + \cdots + \frac{1}{99 \cdot 100}$. **Hints:** 97