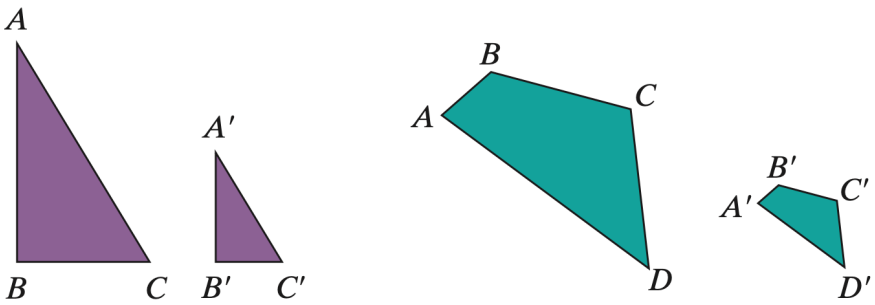
Sections 6.4-6.6: Solving Rational Equations and Applications

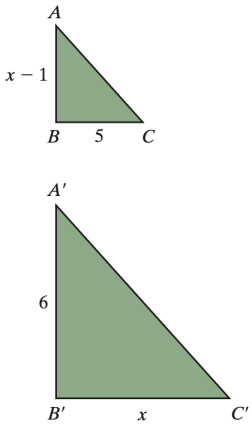
Example: One number is twice another number. The sum of the reciprocals of the two numbers is $\frac{3}{10}$. Determine the numbers.

Similar Figures:

Definition: Similar figures are figures whose corresponding angles are equal and whose corresponding sides are in proportion.



Example: Solve for x in the following image:



Work Problems:

Definition: Problems where two or more people or machines work together to complete a certain task are referred to as work problems. To solve work problems, you can use the following formula structure:

$$(\text{rate of one} \cdot \text{time one worked}) + (\text{rate of two} \cdot \text{time two worked}) + \ldots = 1$$

Examples:

(1) After snowfall, it takes Bud 3 hours to shovel the driveway and it take Tina 5 hours to shovel the same driveway. If Bud and Tina work together, how long will it take them to shovel the driveway?

(2) James turns on the faucet to his tub but forgets to close the drain. The faucet can fill the tub in 10 minutes and the drain can empty the tub in 18 minutes. If the faucet is on and the drain remains open, how long will it take for the tub to fill?

(3) Sean and Mark work on a strawberry farm. When they work together, they can check the plants in 24 minutes. When Sean checks the plants himself, it takes him 36 minutes. How long does it take Mark to check the plants by himself?