Skill Builder

5 Properties of Proportions

EVALUATED



Given that the two ratios below are equivalent, determine the value of x.

> 3:2 and x:10

2 Given that the two ratios below are equivalent, determine the value of x.

4:x and 6:15

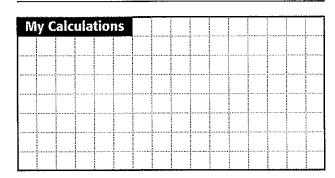
- 3 It takes 3 lemons to make 2 L of lemonade. In a proportional situation, how many lemons do we need to make 12 L of lemonade?
- 4 Lynn swims 18 lengths of her pool in 12 minutes. How many lengths could she swim in 4 minutes if this situation is proportional?
- 5 The table of values below represents a proportional situation. Determine the value of a using the additive procedure.

x	у
6	15
10	25
16	а

6 The table of values below represents a proportional situation. Determine the value of a using the additive procedure.

х	у
15	39
25	а
40	104

7 Shawna buys 3 pens for \$3.75 and 5 pens for \$6.25. In a proportional situation, how much will she pay for 8 pens? Use the additive procedure.



8 Maria buys 10 hockey pucks for \$22.50 and 16 hockey pucks for \$36. In a proportional situation, how much will she pay for 6 hockey pucks? Use the additive procedure.

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9 In a proportional situation, 4 pounds of chocolate costs \$a and 7 pounds of chocolate costs \$b. In terms of a and b, what is the cost of 3 pounds of chocolate?

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In a proportional situation, 8 L of Coke costs \$a and 5 L of Coke costs \$b. In terms of a and b, what is the cost of 4 L of Coke?

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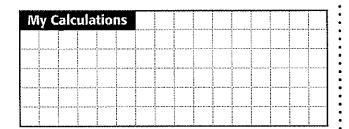
Skill Builder

7 Solving for an Unknown Value in a Proportion EVALUATED



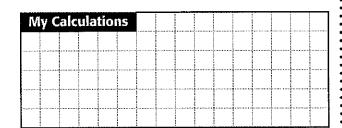
Determine the value of x in the following proportion by using cross-multiplication.

$$\frac{x}{9} = \frac{2}{3}$$



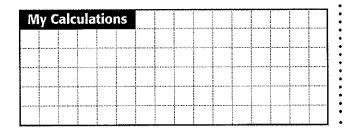
Determine the value of x in the following proportion by using cross-multiplication.

$$\frac{x}{5} = \frac{12}{20}$$



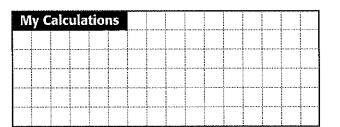
3 Determine the value of x in the following proportion by using cross-multiplication.

$$\frac{10}{x} = \frac{15}{24}$$



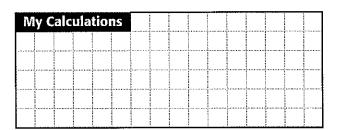
Determine the value of x in the following proportion by using cross-multiplication.

$$\frac{15}{x} = \frac{75}{200}$$



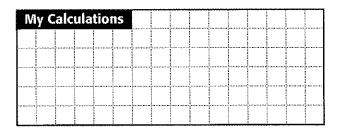
Determine the value of x in the following proportion by using cross-multiplication.

$$\frac{6}{14} = \frac{x}{35}$$



Determine the value of x in the following proportion by using cross-multiplication.

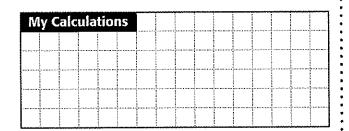
$$\frac{10}{12} = \frac{x}{30}$$





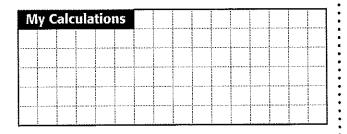
7 Determine the value of x in the following proportion by using cross-multiplication.

$$\frac{12}{33} = \frac{28}{x}$$



8 Determine the value of x in the following proportion by using cross-multiplication.

$$\frac{21}{30} = \frac{35}{x}$$



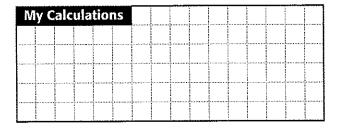
Determine the value of x in the following proportion by using cross-multiplication.

$$\frac{x}{0.75} = \frac{0.54}{0.9}$$

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10 Determine the value of x in the following proportion by using cross-multiplication.

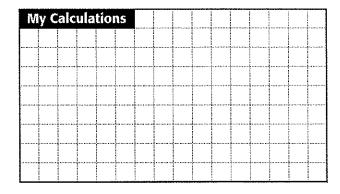
$$\frac{5.1}{6.8} = \frac{x}{5.6}$$





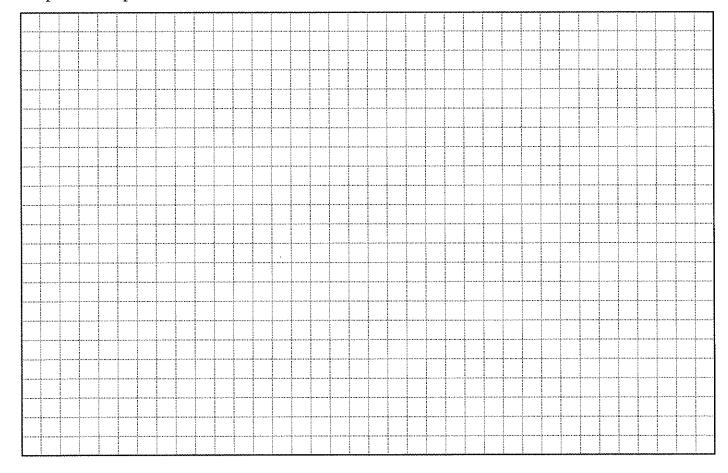
- 6 You can buy printer ink cartridges in two different packages.
 - 3 cartridges containing 7.5 mL per cartridge at \$15.46
 - 2 cartridges containing 14 mL per cartridge at \$16.99

Which is a better buy?



I can buy a prescription from the local pharmacy at \$6.50 per 30 pills, or I can buy it from an online pharmacy at \$16.50 for 90 pills. I have to take one pill per day for 360 days.

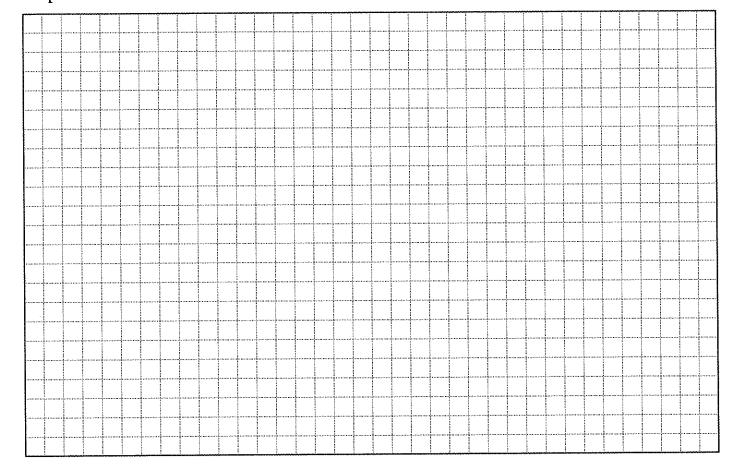
Make a table and graph to show the long term cost differences over 360 days for the two purchase options.





8 Two cable companies offer identical services in your area. One company has a \$100 set-up fee with a monthly fee of \$100. The other company has no set-up fee and charges \$120 per month.

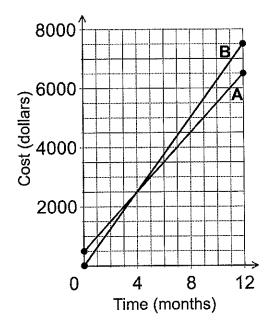
Make a table and graph to show the long term cost differences over 1 year for the two different plans.



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9 Compare the rental rates for identical 2-bedroom apartments in different complexes.

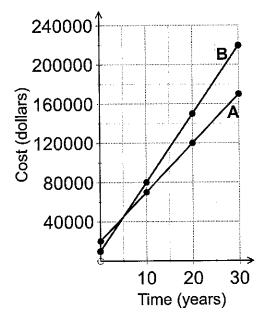
Apartment A	Apartment B
\$500 deposit	\$0 deposit
\$500/month	\$625/month



- a. What is the total cost of each plan after 12 months?
- **b.** What is the break even point in months?
- c. Which apartment is a better buy?

10 You can purchase a \$100,000 home through 2 different mortgage plans.

Plan A \$10,000 down \$20,000 down \$7,000/year \$5,000/year 30 years 30 years



- a. What is the total cost of each plan after 30 years?
- **b.** What is the break even point in years?
- **c.** Which plan is a better buy?