

Seventh Grade Sample Lesson

Math 4 Success SOLVING PROPORTIONS LEVEL 20 Lesson 2

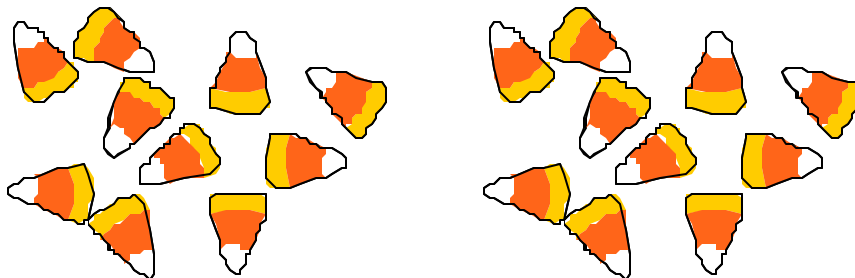
Solving proportions that have one variable

Key Concept: $\frac{a}{b} = \frac{c}{d}$ This is true if and only if this true $a \times d = b \times c$

Example: $\frac{6}{n} = \frac{3}{5}$ $6 \times 5 = 3 \times n$
 $30 = 3n$
 $n = 10$

If two pieces of candy cost 15 cents, find the price of a dozen pieces.

$\frac{2}{15} = \frac{12}{n}$ $2 \times n = 12 \times 15$
 $2n = 180$
 $n = 90$ cents



SOLVING PROPORTIONS

1. **CONCEPT:**

Multiplication/Division: Solving proportions.

2. **BEHAVIORAL OBJECTIVE:**

The student given a proportion with one variable will be able to solve for the value of the variable.

3. **MATHEMATICAL IDEAS:**

- a) A ratio is a fractional number used to compare the cardinal number of two sets of like elements.
- b) If two ratios are equal, the statement is called a proportion.
- c) If two ratios are equal, the product of the means is equal to the product of the extremes.

$$\text{If } \frac{a}{b} = \frac{c}{d} \quad (b, d \neq 0), \text{ then } ad = bc$$

4. **KEY WORDS:**

proportion ratio means extremes

5. **ACTIVITIES:**

A good review of the meaning of ratio is important before solving Proportions. Ratio is introduced on Level 14.

PROPORTION Worksheet

NAME _____

1.
$$\frac{28}{21} = \frac{160}{N}$$

2.
$$\frac{21}{39} = \frac{N}{130}$$

3.
$$\frac{N}{30} = \frac{3/10}{9}$$

4.
$$\frac{N}{27} = \frac{100}{180}$$

5.
$$\frac{18}{7} = \frac{N}{3}$$

6.
$$\frac{60}{90} = \frac{8}{N}$$

7.
$$\frac{14}{4} = \frac{63}{N}$$

8.
$$\frac{1200}{N} = \frac{2}{5}$$

9.
$$\frac{15}{24} = \frac{N}{16}$$

10.
$$\frac{4.5}{6} = \frac{N}{4}$$

11.
$$\frac{2.7}{6} = \frac{18}{N}$$

12.
$$\frac{5/4}{10} = \frac{N}{8}$$

13.
$$\frac{N}{3.2} = \frac{5}{8}$$

14.
$$\frac{n}{.3} = \frac{32}{6}$$

15.
$$\frac{.003}{.06} = \frac{N}{80}$$

PROPORTION
Answers to Worksheet

- | | | | | |
|--------|-------|---------|---------|-------------------|
| 1) 120 | 2) 70 | 3) 1 | 4) 15 | 5) $7\frac{5}{7}$ |
| 6) 12 | 7) 18 | 8) 3000 | 9) 5 | 10) 3 |
| 11) 40 | 12) 1 | 13) 2 | 14) 1.6 | 15) 4 |

SOLVING PROPORTIONS

Concept Test

Name _____

Score _____

Solve for n in the following proportions, Write answer in simplest form. Show your work.

1. $\frac{4}{n} = \frac{2}{7}$

2. $\frac{28}{21} = \frac{160}{n}$

3. $\frac{3}{4} = \frac{n}{14}$

4. $\frac{1.6}{n} = \frac{4}{7}$

5. $\frac{7.5}{24} = \frac{n}{16}$

SOLVING PROPORTIONS

Answers to Concept Test

1. 14

2. 120

3. $10\frac{1}{2}$

4. 2.8

5. 5