7.7

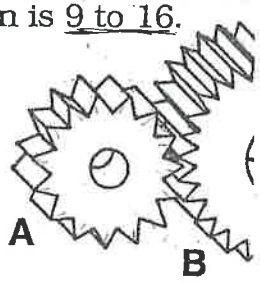
# What Did the Detectives Say to the Crook?

Solve each problem and find your solution in the answer column. Note the two letters next to it. Write these letters in the two boxes above the exercise number at the bottom of the page.

**1** To make his special salad dressing, Wolfgang combines 7 fl oz of oil with 4 fl oz of vinegar. One day he needed a larger amount, so he used 8 fl oz of oil. How much vinegar did he need? 4.6 fl oz

**2** The ratio of height to width for a TV screen is 9 to 16. How high is a screen that is 30 in. wide? 16.9 in

**3** GEAR RATIO. The ratio of the number of teeth on Gear A to the number of teeth on Gear B is 5 to 12. How many teeth are on Gear B? *(Hint: Count the teeth on Gear A.)*

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**4** Jessica checked her gas mileage and found that she had used 17.4 gal of gas to travel 392 mi. At this rate, how many gallons will she use to travel from Los Angeles to Miami, a distance of 2,735 mi? 121.4 gal

**5** If there are 95 g of fat in 16 oz of ground beef, how much fat is in 3 oz of ground beef? 17.8g

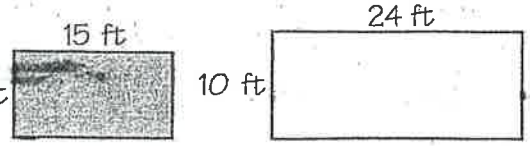
**6** A locomotive is 56 ft long and 11 ft wide. A special effects designer makes a model that is 18 in. long. How wide should it be? 3.5 in

**7** The Screaming Equals' team color is made by mixing red paint with blue paint in a ratio of 12 to 7. How much blue paint should be mixed with 4 gal of red? 2.3 gal

**8** A marathon runner ran the first 3 mi in 17.2 min. If she continues running at this pace, how long will it take her to run the entire marathon of 26.2 mi? 150.2 min

**9** SOLAR SYSTEM MODEL. The sun has a diameter of 870,000 mi. The Earth has a diameter of 8,000 mi. If a 24-cm-diameter basketball is used as a model sun, what should be the diameter of the model Earth? 0.2 cm

**10** If it took 1.5 qt of paint to paint the wall on the left, how many quarts will be needed to paint the wall on the right? 3qt




answers

| | | |
|---|---|---|
| S | T | 153.4 min |
| W | E | 36 |
| E | S | 4.9 in. |
| E | T | 2.3 gal |
| D | R | 18.3 g |
| O | S | 0.7 cm |
| O | L | 3 qt |
| I | C | 4.6 fl oz |
| T | H | 42 |
| O | M | 121.4 gal |
| A | N | 2.5 gal |
| O | U | 3.5 in. |
| G | O | 5.2 fl oz |
| A | R | 150.2 min |
| T | Y | 16.9 in. |
| U | N | 2.8 qt |
| E | P | 17.8 g |
| E | E | 0.2 cm |
| L | L | 124.5 gal |

| W | E | A | R | E | P | O | L | I | C | E | T | O | M | E | E | T | Y | O | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | | 8 | | 5 | | 10 | | 1 | | 7 | | 4 | | 9 | | 2 | | 6 | |

Key

40 pts total

## 7.7 What Did the Detectives Say to the Crook?

**Show all work here. Set up *labeled* proportions for each problem.**

**1**

oil / vinegar → $\frac{7}{4} = \frac{8}{x}$

$7x = 32$

$x = 4.6$ fl. oz vinegar

$y = kx$

$7 = k(4)$

$1.75 = k$

$y = 1.75x$

**2**

Height / width → $\frac{9}{16} = \frac{x}{30}$

$16x = 270$

$x = 16.875$ in

$y = kx$

$9 = k(16)$

$.5625 = k$

$y = .5625x$

**3**

A / B → $\frac{5}{12} = \frac{15}{x}$

$5x = 180$

$x = 36$ teeth

$y = kx$

$5 = k(12)$

$5/12 = k$

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

**4**

gallons / Miles → $\frac{17.4}{392} = \frac{x}{2735}$

$392x = 47{,}589$

$x \approx 121.4$ gallons

$y = kx$

$17.4 = k(392)$

$\frac{87}{1960} = k$

$y = \frac{87}{1960}x$

**5**

grams / ounces → $\frac{95}{16} = \frac{x}{3}$

$16x = 285$

$x \approx 17.8$ grams fat

$y = kx$

$95 = k(16)$

$5.9 = k$

$y = 5.9x$

**6**

length / width → $\frac{56 \text{ ft}}{11 \text{ ft}} = \frac{18 \text{ in}}{x \text{ in}}$

$56x = 198$

$x \approx 3.5$ in wide

$y = kx$

$56 = k(11)$

$5.09 = k$

$y = 5.09x$

**7**

red / blue → $\frac{12}{7} = \frac{4}{x}$

$12x = 28$

$x = 2.\overline{3}$ gallons blue

$y = kx$

$12 = k(7)$

$12/7 = k$

$y = \frac{12}{7}x$

**8**

Miles / Minutes → $\frac{3}{17.2} = \frac{26.2}{x}$

$3x = 450.64$

$x \approx 150.2$ Minutes

$y = kx$

$3 = k(172)$

$\frac{30}{172} = k$

$y = \frac{30}{172}x$

**9**

Sun / Earth → $\frac{870{,}000}{8{,}000} = \frac{24}{x}$

$870{,}000x = 192{,}000$

$x \approx .22$ cm

$y = kx$

$870{,}000 = k(8{,}000)$

$108.75 = k$

$y = 108.75x$

**10**

Qts / sqft → $\frac{1.5}{120} = \frac{x}{240}$

$120x = 360$

$x = 3$ qts

$y = kx$

$15 = k(120)$

$.125 = k$

$y = .125x$