

## Chapter 5 Test

1)

a) Let  $x$  be the first number and let  $y$  be the second number.

$$x = 12y$$

$$x + y = 13$$

First number is twelve times the second

Sum of the two numbers is 13

b)  $x + y = 13$

$$(12y) + y = 13$$

$$12y + y = 13$$

$$13y = 13$$

$$y = 1$$

$$x = 13 - y = 13 - (1) = 12$$

Substitute  $12y$  for  $x$  in the second equation

c) The two numbers are 12 and 1, so Frances's 3-digit lottery number is 121.

3) Let  $l$  be the length (in cm) of one of the legs of the isosceles triangle. Let  $b$  be the length of the remaining side (in cm). From the problem we have

$$2l + b = 20$$

$$b = 3l + 4$$

Perimeter is 20 cm

Remaining side is 4 cm more than 3

$$2l + b = 20$$

$$2l + (3l + 4) = 20$$

$$2l + 3l + 4 = 20$$

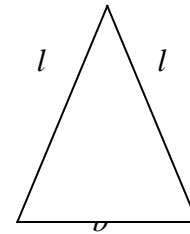
$$5l + 4 = 20$$

$$5l = 16$$

$$l = \frac{16}{5} = 3.2$$

$$b = 3l + 4 = 3(3.2) + 4 = 13.6$$

Substitute  $3l + 4$  for  $b$



The length of a leg is 3.2 cm and the length of the remaining side is 13.6 cm.

5)

0

?

200



$$\frac{\text{part}}{\text{whole}} = \text{percent}$$

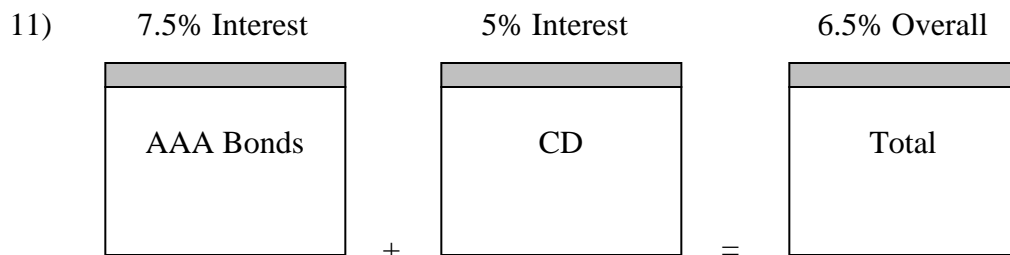
$$\frac{\text{part}}{200} = 0.85$$

$$\text{part} = 0.85(200) = 170$$

7)  $\frac{\text{part}}{\text{whole}} = \text{percent}$

$$\frac{16}{20} = 0.80 = 80\%$$

9) 180 ml of a 15% solution is stronger. Strength of solution is determined *solely* by the percentage of solute, the substance dissolved in the solvent.



Let  $x$  be the amount of money (\$) that Fred invests in AAA bonds.  
 Let  $y$  be the amount of money (\$) that Fred invests in the CD.

$$x + y = 5000$$

$$0.075x + 0.05y = 0.065(5000)$$

A total of \$5000 was invested  
 Fred earns 6.5% interest overall

$$y = 5000 - x$$

$$0.075x + 0.05(5000 - x) = 0.065(5000)$$

Substitute  $5000 - x$  for  $y$

$$0.075x + 0.05(5000 - x) = 325$$

$$0.075x + 250 - 0.05x = 325$$

$$0.025x + 250 = 325$$

$$0.025x = 75$$

$$x = 3000$$

$$y = 5000 - x = 5000 - (3000) = 2000$$

Fred should invest \$3000 in AAA bonds and \$2000 in the CD.