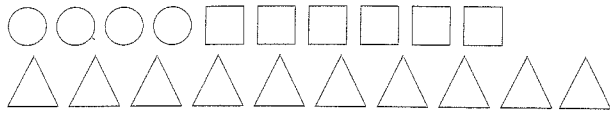## Quick Review

The picture shows 4 circles, 6 squares, and 10 triangles.

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△△△△△△△△△△

Here are some ways you can use ratios, fractions, and percents to compare the shapes.

➤ **Part-to-Whole Ratios**
The ratio of circles to all of the shapes is 4 to 20 or 4:20.

This part-to-whole ratio can be written as the fraction $\frac{4}{20}$ or $\frac{1}{5}$.

It can also be written as a percent. $\frac{4}{20} = \frac{20}{100} = 20\%$

20% of the shapes are circles.

➤ **Part-to-Part Ratios**
The ratio of circles to squares is 4 to 6 or 4:6. 4 and 6 are the terms of the ratio.

The ratio of circles to squares to triangles is 4 to 6 to 10 or 4:6:10.
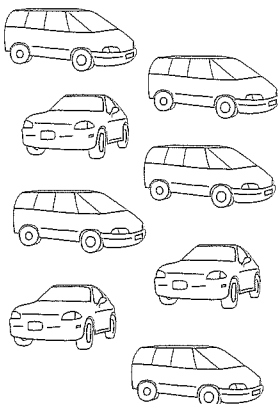This is called a three-term ratio.

A part-to-part ratio cannot be written in fraction or percent form, as it is not comparing one part to the whole.
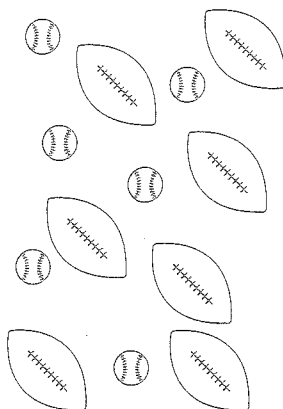
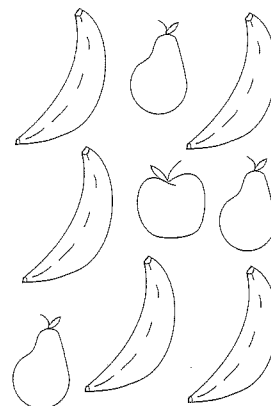## Practice

1. Write each ratio.
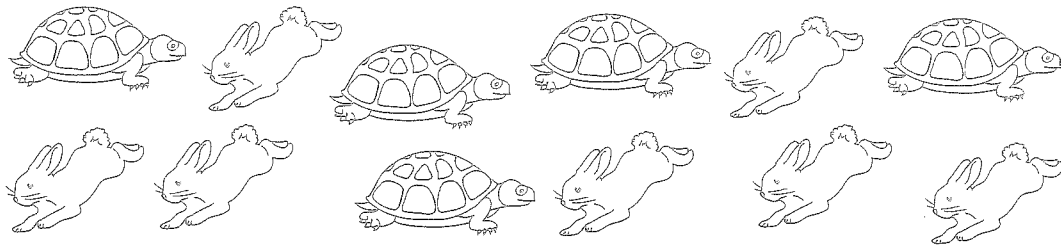
   a) cars to vans   b) footballs to baseballs   c) bananas to fruit

___ : ___   _____   _____

2. Write each part-to-whole ratio as a ratio, a fraction, and a percent. Round percents to 2 decimal places.

a) turtles to total animals ____ : ____ , ____ , _____

b) rabbits to total animals ____ : ____ , ____ , _____

HINT
What is the total number of rabbits? of turtles? of animals?

3. Franny has only dimes and quarters in her pocket. The ratio of dimes to total coins is 8 to 11.

HINT
Sketch the coins. Use (10¢) for a dime and (25¢) for a quarter.

a) How many quarters might be in Franny's pocket? _____

b) What is the ratio of dimes to quarters? _____

c) What is the ratio of quarters to the total number of coins? _____

4. Make a sketch to show that the ratio of triangles to circles is 6:13.

Write 3 ratios to compare the figures.

a) circles to triangles _____

b) circles to total figures _____

c) triangles to total figures _____

5. Write each ratio.
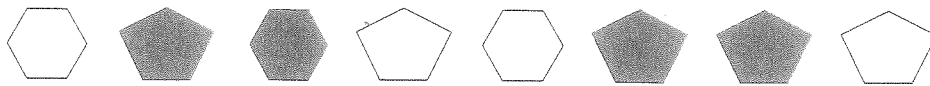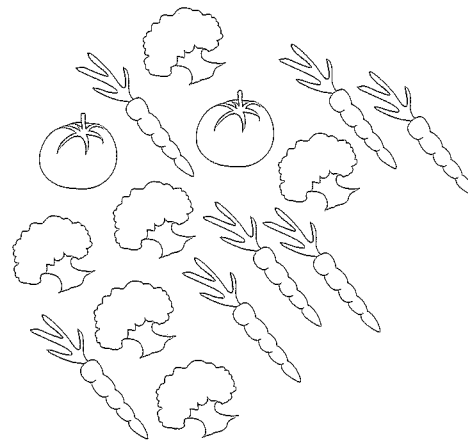

   a) hexagons to pentagons _____

   b) pentagons to hexagons _____

   c) hexagons to total shapes _____

   d) pentagons to total shapes _____

   e) black figures to white shapes _____

   f) white hexagons to black hexagons to white pentagons _____

6. What objects are being compared in each ratio?

   a) 7:15 _____ to total vegetables

   b) 2:7 tomatoes to _____

   c) 2:7:6 _____ to carrots to _____

   d) 6:7 _____ to _____

   e) $\frac{2}{15}$ _____ to _____

   f) $\frac{6}{15}$ _____ to _____

7. A pencil case contains 7 yellow, 3 red, 1 black, and 5 green pencil crayons.
   a) Write each ratio.

   • red:green _____   • yellow:red _____

   • black:total pencil crayons _____   • yellow:total pencil crayons _____

   • yellow:red:green _____

   b) What is the ratio of yellow and red pencil crayons to total pencil crayons? _____

   What percent of all the pencil crayons are red or yellow? _____
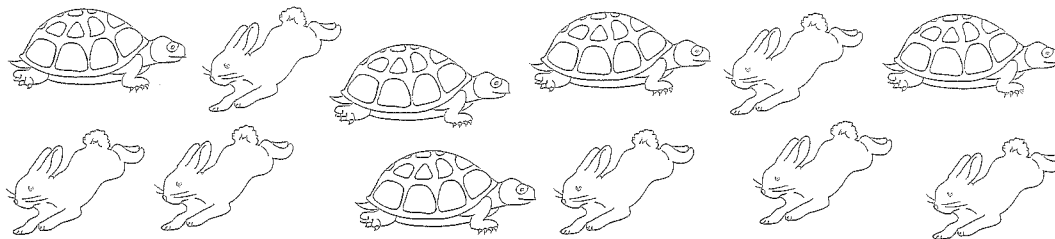
   c) What is the ratio of green pencil crayons to black and red pencil crayons? _____

   d) Suppose 2 yellow and 2 green pencil crayons are lost.
      Rewrite the ratios in part a).

   • red:green _____   • yellow:red _____

   • black:total pencil crayons _____   • yellow:total pencil crayons _____

   • yellow:red:green _____

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2. Write each part-to-whole ratio as a ratio, a fraction, and a percent. Round percents to 2 decimal places.

a) turtles to total animals ___ : ___, ___, _____

b) rabbits to total animals ___ : ___, ___, _____

3. Franny has only dimes and quarters in her pocket. The ratio of dimes to total coins is 8 to 11.

a) How many quarters might be in Franny's pocket? _____

b) What is the ratio of dimes to quarters? _____

c) What is the ratio of quarters to the total number of coins? _____

4. Make a sketch to show that the ratio of triangles to circles is 6:13.

Write 3 ratios to compare the figures.

a) circles to triangles _____

b) circles to total figures _____

c) triangles to total figures _____

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Quick Review

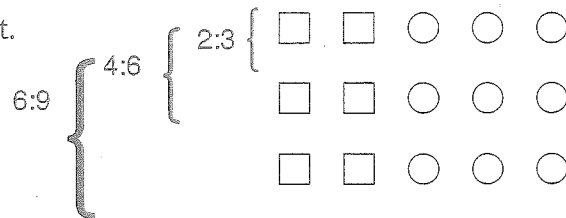➤ You can find equivalent ratios by multiplying.
Multiply the terms by the same number.

1st term	2	4	6	8	10
2nd term	3	6	9	12	15

Four equivalent ratios of 2:3 are: 4:6, 6:9, 8:12, and 10:15.

Picture it.

➤ You can also find equivalent ratios by dividing.
Divide the terms by the same number.

1st term	20	10	4	2
2nd term	30	15	6	3

Three equivalent ratios of 20:30 are: 10:15, 4:6, and 2:3.

➤ To write a ratio in its simplest form, divide the terms by their GCF.

$$21:14 = (21 \div 7):(14 \div 7)$$
$$= 3:2$$

HINT

The GCF of 21 and 14 is 7. Divide by 7.

1. Write three ratios that are equivalent to each ratio.

a) 4:5

		×2	×3	
1st term	4	8		
2nd term	5	10		

×2, ×3

Three ratios equivalent to 4:5 are 8:10, _____, and _____.

b) 32:24

		÷2		
1st term	32			
2nd term	24			

÷2

Three ratios equivalent to 32:24 are _____, _____, and _____.

c) 16:28

1st term				
2nd term				

_____

_____

HINT

Multiply or divide
the terms by the
same number.

2. Write two ratios that are equivalent to each ratio.

a) 8:5:2   b) 24:16:12

_____   _____

3. Write each ratio in simplest form.

a) 10:4

GCF of 10 and 4 is 2.

$10:4 = (10 \div 2):(4 \div 2)$

$= 5:$ _____

b) 6:15

GCF of 6 and 15 is _____.

$6:15 = (6 \div$ _____$):(15 \div$ _____$)$

$=$ _____ : _____

c) 14:28

_____

d) 25:10

_____

4. a) Match the pairs of equivalent ratios.

i) 5:6 — 1:2
    18:3 — 15:18
    9:18   8:40
    4:20   6:1

ii) 1:8   1:9
    3:27   1:3
    12:36 —
    18:2   9:1
            2:16

b) How do you know that 12:36 and 1:3 are equivalent?

_____

_____

5. The ratio of cats to dogs at the animal shelter is 4 to 5.
How many cats could there be? How many dogs?
Write six different answers.

4 cats and 5 dogs

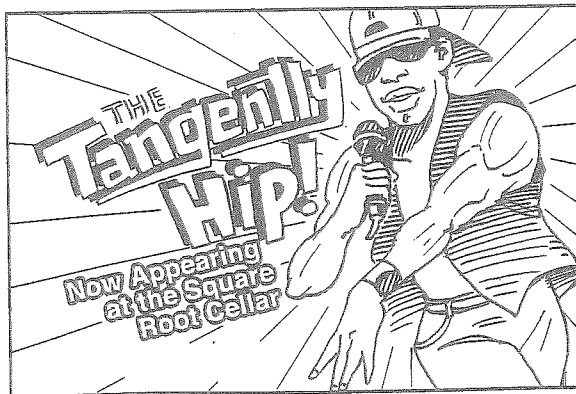_____ cats and _____ dogs

_____

8 cats and _____ dogs

_____

_____

6. The length-to-width ratio of Colby's poster is 3:2.
The poster is 90 cm long. How wide is it?

THE Tangenlly Hip! Now Appearing at the Square Root Cellar

HINT

Find a ratio equivalent to 3:2 in which the first term is 90.

$3 : 2 = 90 :$ _____

(× 30, × 30)

The poster is _____ cm wide.