NS7-71 Further Percents

35% is short for $\frac{35}{100}$. To find 35% of 27, Sadie finds $\frac{35}{100}$ of 27.

Step 1: She multiplies 27 by 35.

2	3	
	2	7
×	3	5
1	3	5
8	1	0
9	4	5

Step 2: She divides the result by 100.

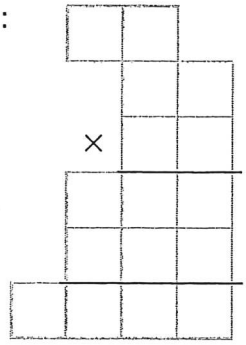
$945 \div 100 = 9.45$

So 35% of 27 is 9.45.

1. Find the percent using Sadie's method.

a) 25% of 44

Step 1:

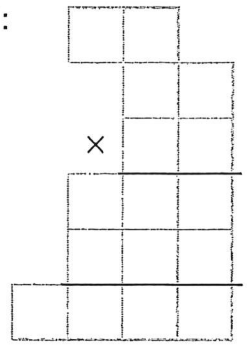


Step 2: _____ ÷ 100 = _____

So _____ of _____ is _____.

b) 18% of 92

Step 1:



Step 2: _____ ÷ 100 = _____

So _____ of _____ is _____.

2. Find the percent using Sadie's method.

a) 23% of 23 b) 15% of 26 c) 26% of 15 d) 64% of 58

e) 58% of 64 f) 50% of 81 g) 81% of 50 h) 92% of 11

3. a) Find 35% of 40 in two ways. Do you get the same answer both ways?

i) Use Sadie's method.

ii) Use 35% = 25% + 10%.

b) 35% is less than 50% = $\frac{1}{2}$. Is your answer to part a) less than half of 40?

c) Is 35% closer to 0 or $\frac{1}{2}$? _____

Was your answer to part a) closer to 0 or to half of 40? _____

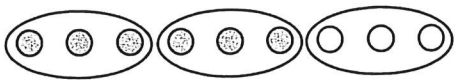
Is your answer to part a) reasonable? Explain.

4. Find 30% of 50 and 50% of 30. What do you notice? Why is this the case?

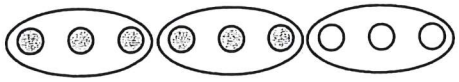
NS7-72 Writing Equivalent Statements for Proportions

These are equivalent statements:

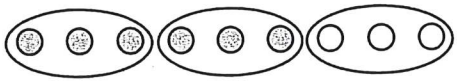
$\frac{6}{9}$ of the circles are shaded.



$\frac{2}{3}$ of the circles are shaded.



6 is $\frac{2}{3}$ of 9.



$6 : 9 = 2 : 3$

part whole

1. Write four equivalent statements for each picture.

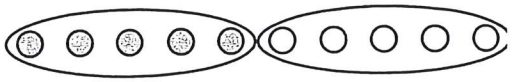
a) 

$\frac{4}{6}$ are shaded

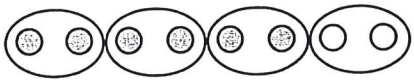
$\frac{2}{3}$ are shaded

4 is $\frac{2}{3}$ of 6

4 : 6 = 2 : 3

b) 

c) 

d) 

2. For each picture, write a pair of equivalent ratios.

a) 

4 is $\frac{1}{2}$ of 8

$\frac{4}{\text{part}} : \frac{8}{\text{whole}} = \frac{1}{} : \frac{2}{}$

b) 

6 is $\frac{3}{5}$ of 10

$\frac{\quad}{\text{part}} : \frac{\quad}{\text{whole}} = \quad : \quad$

c) 

2 is $\frac{1}{4}$ of 8

$\frac{\quad}{\text{part}} : \frac{\quad}{\text{whole}} = \quad :$

3. For each statement, write a pair of equivalent ratios and equivalent fractions.

a) 15 is $\frac{3}{4}$ of 20 $\frac{\quad}{\text{part}} : \frac{\quad}{\text{whole}} = \quad : \quad$ $\frac{\text{part}}{\text{whole}} \quad \frac{\quad}{\quad} = \frac{\quad}{\quad}$

b) 18 is $\frac{9}{10}$ of 20 $\frac{\quad}{\text{part}} : \frac{\quad}{\text{whole}} = \quad : \quad$ $\frac{\text{part}}{\text{whole}} \quad \frac{\quad}{\quad} = \frac{\quad}{\quad}$

4. Write a question mark where you are missing a piece of information.

a) 12 is $\frac{4}{5}$ of what number? $\frac{12}{\text{part}} : \frac{?}{\text{whole}} = \frac{4}{} : \frac{5}{}$ $\frac{\text{part}}{\text{whole}}$ $\frac{12}{?} = \frac{4}{5}$

b) 6 is how many quarters of 8? $\frac{6}{\text{part}} : \frac{8}{\text{whole}} = \frac{?}{} : \frac{4}{}$ $\frac{\text{part}}{\text{whole}}$ $\frac{\quad}{\quad} = \frac{\quad}{\quad}$

c) What is $\frac{3}{4}$ of 16? $\frac{\quad}{\text{part}} : \frac{\quad}{\text{whole}} = \frac{\quad}{} : \frac{\quad}{}$ $\frac{\text{part}}{\text{whole}}$ $\frac{\quad}{\quad} = \frac{\quad}{\quad}$

d) 20 is how many thirds of 30? $\frac{\quad}{\text{part}} : \frac{\quad}{\text{whole}} = \frac{\quad}{} : \frac{\quad}{}$ $\frac{\text{part}}{\text{whole}}$ $\frac{\quad}{\quad} = \frac{\quad}{\quad}$

5. For each statement, write a pair of equivalent ratios and a pair of equivalent fractions.

a) 15 is what percent of 20? $\frac{15}{\text{part}} : \frac{20}{\text{whole}} = \frac{?}{} : \frac{100}{}$ $\frac{\text{part}}{\text{whole}}$ $\frac{15}{20} = \frac{?}{100}$

b) What is 25% of 80? $\frac{\quad}{\text{part}} : \frac{\quad}{\text{whole}} = \frac{\quad}{} : \frac{\quad}{}$ $\frac{\text{part}}{\text{whole}}$ $\frac{\quad}{\quad} = \frac{\quad}{\quad}$

c) 9 is what percent of 12? $\frac{\quad}{\text{part}} : \frac{\quad}{\text{whole}} = \frac{\quad}{} : \frac{\quad}{}$ $\frac{\text{part}}{\text{whole}}$ $\frac{\quad}{\quad} = \frac{\quad}{\quad}$

d) 18 is 3% of what number? $\frac{\quad}{\text{part}} : \frac{\quad}{\text{whole}} = \frac{\quad}{} : \frac{\quad}{}$ $\frac{\text{part}}{\text{whole}}$ $\frac{\quad}{\quad} = \frac{\quad}{\quad}$

6. Write the two pieces of information you are given and what you need to find (?). Then write an equation for the problem.

a) What percent of 30 is 5? part 5 whole 30 percent ? $\frac{5}{30} = \frac{?}{100}$

b) If 7 is 20%, what is 100%? part ____ whole ? percent ____ $\frac{\quad}{?} = \frac{\quad}{100}$

c) What is 6% of 24? part ? whole ____ percent ____ $\frac{?}{\quad} = \frac{\quad}{100}$

d) If 3 is 12%, what is 100%? part ____ whole ____ percent ____ $\frac{\quad}{\quad} = \frac{\quad}{100}$

e) What percent of 90 is 4? part ____ whole ____ percent ____ $\frac{\quad}{\quad} = \frac{\quad}{100}$

f) What is 52% of 18? part ____ whole ____ percent ____ $\frac{\quad}{\quad} = \frac{\quad}{100}$

g) 7 is what percent of 25? part ____ whole ____ percent ____ $\frac{\quad}{\quad} = \frac{\quad}{100}$