Name & Surname: _____ Class: _____ Date: _____

Percent of a Quantity

Find the part and find the whole

About 45 minutes Level ★★★☆☆



Percent as a Rate per 100

A percent is a **rate** per 100. To find a percent of a quantity, write the percent as a fraction over 100 and multiply.

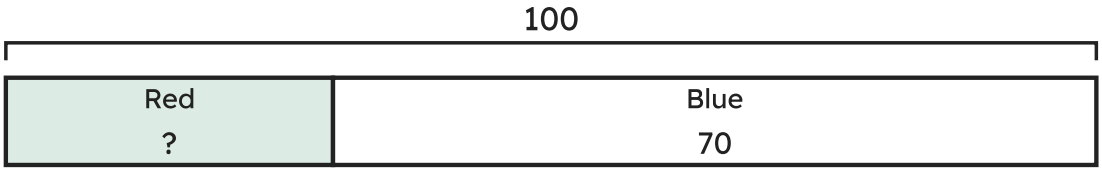
- 30% of a quantity means $\frac{30}{100}$ times the quantity. Example: 30% of 50 = $\frac{30}{100}$ × 50 = 15.
- To find the **part**, use part = percent ÷ 100 × whole.
- To find the **whole**, use whole = part ÷ (percent ÷ 100). Example: if 30% is 15, whole = 15 ÷ (30 ÷ 100) = 50.

TASK A

/4

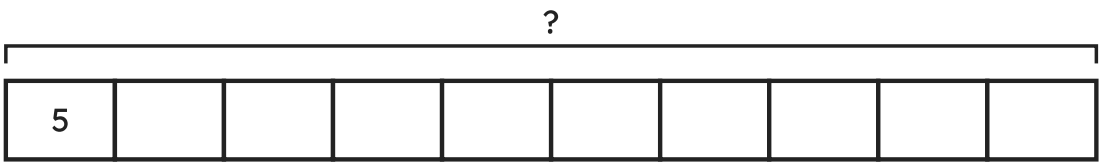
Use the bar models to find the missing part or whole.

1 A jar holds 100 buttons. 30% are **red** and 70 are blue. How many buttons are **red**?



Answer: _____ **buttons**

2 15 marbles is **30%** of a bag. The whole bag is 10 equal parts of 10% with 5 marbles in each part. How many marbles are in the **whole** bag?



Answer: _____ **marbles**

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Find Parts and Wholes

Practice finding a percent of a number.

Key words

percent: parts per 100, written with %

whole: the total amount

percent sign: the % symbol meaning per 100

rate: a comparison per 100 for percent

part: a piece of the whole

TASK B

/12

Build fluency with percent as a rate per 100.

WARM UP

1. Work out **30%** of 100.

Answer: _____

2. Work out **25%** of 80.

Answer: _____

3. Work out **50%** of 46.

Answer: _____

4. Work out **10%** of 250.

Answer: _____

PRACTICE

5. Work out **15%** of 200.

Answer: _____

6. 20% of a **number** is 12. What is the **whole** number?

Answer: _____

7. 30% of a **number** is 18. What is the **whole** number?

Answer: _____

8. Explain how you know that **50%** of 40 is 20 using a **rate** per 100.

Answer: _____

PROBLEM SOLVING

9. A shirt costs $40. A **sale** takes 25% off. How much is the **discount**?

Answer: _____

10. A book has 120 **pages**. A student reads **10%** of them. How many pages is that?

Answer: _____

11. 25% of a **bag** of rice weighs 5 pounds. What does the **whole** bag weigh?

Answer: _____

12. 40% of the students in a **grade** are 48 students. How many are in the **whole** grade?

Answer: _____

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Spot the Mistakes

Find and fix common percent errors.

TASK C /4

Find the wrong step, explain the error, and give the correct answer.



Student A

Work out **30%** of 60.

1. 30% of 60
2. = 30 × 60
3. = 1800

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____



Student B

25% of a **number** is 10. Find the **whole** number.

1. 25% of number = 10
2. = $\frac{25}{100}$ × 10
3. = 2.5

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____

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Percent of a Quantity

TASK D

/12

Find each part and whole using percent as a rate per 100.

WARM UP

1. Work out **10%** of 90.

Answer: _____

2. Work out **30%** of 50.

Answer: _____

3. Work out **25%** of 80.

Answer: _____

4. Work out **50%** of 140.

Answer: _____

PRACTISE

5. Work out **15%** of 200.

Answer: _____

6. Work out **75%** of 96.

Answer: _____

7. 20% of a number is 14. Find the **whole**.

Answer: _____

8. 40% of a number is 32. Find the **whole**.

Answer: _____

PROBLEM SOLVING

9. **30%** of 300 students ride a bike to school. How many **students** is that?

Answer: _____

10. A jacket costs $80. The discount is **20%** of the price. How much is the **discount**?

Answer: _____

11. **60%** of the points on a test is 48 points. What is the **whole**?

Answer: _____

12. A student says **10%** of 500 is 5 because 10% of 50 is 5. Explain how **you know** it is wrong.

Answer: _____

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Percent of a Quantity

⚖ TASK E

/6

Explain the difference in each pair.

Find 20% of 70 VS **20% of a number is 70, find the number**

The difference is...

30% VS **30**

The difference is...

10% of 200 VS **20% of 100**

The difference is...

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Percent of a Quantity

% TASK F

/12

Fill in the missing fraction, decimal and percent forms.

Fraction	Decimal	Percentage
		30%
$\frac{1}{4}$		
	0.2	
		75%
	0.6	
$\frac{9}{10}$		

How did I do?

Circle a face for each line.

I can find a percent of a quantity as a rate per 100. ☹ 😐 ☺

I can find the whole when I know the part and the percent. ☹ 😐 ☺

I can solve real-life percent problems. ☹ 😐 ☺

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Answer sheet: Percent of a Quantity

Task A

1. 30 buttons
2. 50 marbles

Task B

1. 30
2. 20
3. 23
4. 25
5. 30
6. 60
7. 60
8. 50% means $\frac{50}{100} = \frac{1}{2}$, and $\frac{1}{2}$ of 40 is 20.
9. $10
10. 12 pages
11. 20 pounds
12. 120 students

Task C

1. Step 2 is wrong: They multiplied by 30 instead of $\frac{30}{100}$. Percent means per 100, so use $\frac{30}{100} \times 60$. Correct answer: 18
2. Step 2 is wrong: They multiplied the part by the rate. To find the whole, divide the part by the rate: $10 \div (\frac{25}{100})$. Correct answer: 40

Task D

1. 9
2. 15
3. 20
4. 70
5. 30
6. 72
7. 70
8. 80
9. 90 students
10. $16
11. 80 points
12. 10% means $\frac{10}{100}$ times the whole, so $\frac{10}{100} \times 50 = 5$ but $\frac{10}{100} \times 500 = 50$, not 5.

Task E

1. The first finds the part: $\frac{20}{100} \times 70 = 14$. The second finds the whole: $70 \div (20 \div 100) = 350$.
2. 30% is a rate per 100 meaning $\frac{30}{100}$, while 30 is 30 ones. So 30% of 50 is $\frac{30}{100} \times 50 = 15$, not 30×50.
3. Both give a part of 20, but the rate and whole are different: $\frac{10}{100} \times 200 = 20$ and $\frac{20}{100} \times 100 = 20$.

Task F

1. $\frac{3}{10}$ = 0.3 = 30%
2. $\frac{1}{4}$ = 0.25 = 25%
3. $\frac{1}{5}$ = 0.2 = 20%
4. $\frac{3}{4}$ = 0.75 = 75%
5. $\frac{3}{5}$ = 0.6 = 60%
6. $\frac{9}{10}$ = 0.9 = 90%

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