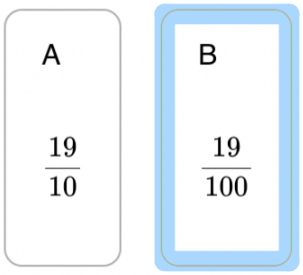
Exercise 5.1

No calculators are permitted in this exercise.

Name:

Worked Example for Simple Questions

0.19 written as a fraction is:



$0.19 = \frac{19}{100}$

hundredths place

Question 1

0.23 written as a fraction is:

Circle the correct option

A $\frac{23}{100}$ **B** $\frac{23}{10}$

Question 2

0.11 written as a fraction is:

Circle the correct option

A $\frac{11}{10}$ **B** $\frac{11}{100}$

Question 3

0.29 written as a fraction is:

Circle the correct option

A $\frac{29}{10}$ **B** $\frac{29}{100}$

Question 4

0.39 written as a fraction is:

Circle the correct option

A $\frac{39}{100}$ **B** $\frac{39}{10}$

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Converting Between Fractions and Decimals

Question 5

0.31 written as a fraction is:

Circle the correct option

A

$\frac{31}{10}$

B

$\frac{31}{100}$

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Worked Example for Standard Questions

Convert the decimal to a fraction. Write the fraction in **simplest form**.

$0.625 = \frac{5}{8}$

0.625 has 3 decimal places, so multiply and divide by 1000.
If there was 1 decimal place, multiply and divide by 10.
If there were 2 decimal places, multiply and divide by 100.

$$\frac{0.625 \times 1000}{1000} = \frac{625}{1000}$$

Divide by common factors until the fraction is in the simplest form.
Note that a number that ends with 5 has 5 as a factor.
A number that ends with 25, has 25 as a factor.
A number that ends with an even number, has 2 as a factor.

$$\frac{625}{1000} = \frac{25}{40} = \frac{5}{8}$$

Question 6

Convert the decimal to a fraction. Write the fraction in **simplest form**.

$0.24 = \frac{\square}{\square}$

Question 7

Convert the decimal to a fraction. Write the fraction in **simplest form**.

$0.72 = \frac{\square}{\square}$

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Converting Between Fractions and Decimals

Question 8

Convert the decimal to a fraction. Write the fraction in **simplest form**.

$0.68 = \frac{\square}{\square}$

Question 9

Convert the decimal to a fraction. Write the fraction in **simplest form**.

$0.275 = \frac{\square}{\square}$

Question 10

Convert the decimal to a fraction. Write the fraction in **simplest form**.

$0.475 = \frac{\square}{\square}$

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Exercise 5.3

No calculators are permitted in this exercise.

Worked Example for Simple Questions

Write 21% as a **decimal**.

0·21

* To convert % to a decimal divide by 100.

$21 \div 100 = 0{\cdot}21$

Question 1

Write 68% as a **decimal**.

Question 2

Write 62% as a **decimal**.

Question 3

Write 59% as a **decimal**.

Question 4

Write 37% as a **decimal**.

Question 5

Write 26% as a **decimal**.

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Worked Example for Standard Questions

Question

Write 7% as a decimal.

Answer:

0.07

% means divide by 100.

$7\% = \frac{7}{100} = 0.07$

Note: to write a decimal as a percentage, multiply by 100 and add the % symbol.

eg. $0.07 = 0.07 \times 100\% = 7\%$

Question 6

Write 210% as a decimal.

Question 7

Write 0.07 as a percentage.

%

Question 8

Write 0.125 as a percentage.

%

Question 9

Write 5% as a decimal.

Question 10

Write 145% as a decimal.

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Exercise 5.5

No calculators are permitted in this exercise.

Worked Example for Simple Questions

Write the percentage as a fraction.

$47\% = \frac{47}{100}$

* % means per hundred, so write the % over 100.

Question 1

Write the percentage as a fraction.

$49\% = \frac{\square}{\square}$

Question 2

Write the percentage as a fraction.

$39\% = \frac{\square}{\square}$

Question 3

Write the percentage as a fraction.

$57\% = \frac{\square}{\square}$

Question 4

Write the percentage as a fraction.

$31\% = \frac{\square}{\square}$

Question 5

Write the percentage as a fraction.

$43\% = \frac{\square}{\square}$

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Converting Between Fractions and Percentages

Worked Example for Standard Questions

Write the percentage as a fraction **in simplest form**.

$76\% = \frac{19}{25}$

$76\% = \frac{76}{100}$ now divide by common factors to simplify

$\frac{76}{100} \overset{\div 2}{=} \frac{38}{50} \overset{\div 2}{=} \frac{19}{25}$

Question 6

Write the percentage as a fraction **in simplest form**.

$68\% = \frac{\square}{\square}$

Question 7

Write the percentage as a fraction **in simplest form**.

$85\% = \frac{\square}{\square}$

Question 8

Write the percentage as a fraction **in simplest form**.

$60\% = \frac{\square}{\square}$

Question 9

Write the percentage as a fraction **in simplest form**.

$80\% = \frac{\square}{\square}$

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Converting Between Fractions and Percentages

Question 10

Write the percentage as a fraction **in simplest form**.

$95\% = \frac{\square}{\square}$

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Exercise 5.7

No calculators are permitted in this exercise.

Worked Example for Simple Questions

George has a box of 60 trading cards.



17 of his trading cards are fire cards.

What ***fraction*** of George's trading cards are fire cards?

$$\frac{17}{60}$$

$$= \frac{\text{number of fire cards}}{\text{total number of cards}}$$

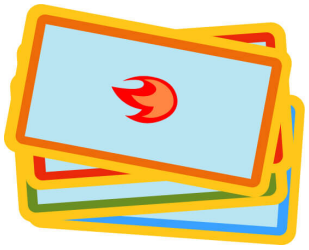
$$= \frac{17}{60}$$

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Writing a Quantity as a Fraction

Question 1

Renee has a box of 79 trading cards.



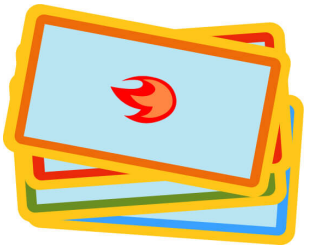
17 of her trading cards are wind cards.

What ***fraction*** of Renee's trading cards are wind cards?

Fraction: $\frac{\square}{\square}$

Question 2

Simon has a box of 65 trading cards.



21 of his trading cards are earth cards.

What ***fraction*** of Simon's trading cards are earth cards?

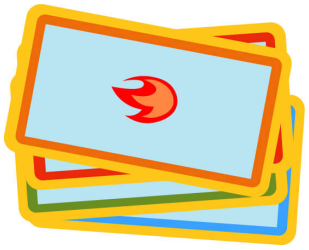
Fraction: $\frac{\square}{\square}$

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Writing a Quantity as a Fraction

Question 3

Max has a box of 66 trading cards.



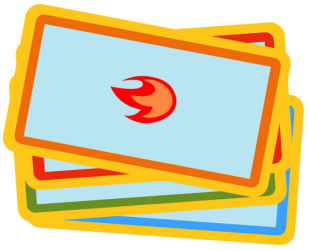
31 of his trading cards are earth cards.

What ***fraction*** of Max's trading cards are earth cards?

Fraction: $\frac{\square}{\square}$

Question 4

Russell has a box of 83 trading cards.



15 of his trading cards are fire cards.

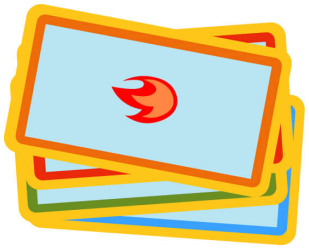
What ***fraction*** of Russell's trading cards are fire cards?

Fraction: $\frac{\square}{\square}$

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Question 5

Mia has a box of 85 trading cards.



19 of her trading cards are water cards.

What ***fraction*** of Mia's trading cards are water cards?

Fraction: $\frac{\square}{\square}$

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Worked Example for Standard Questions

Artemis has 81 wolves.

He feeds 36 of the wolves.

What fraction of the wolves did Artemis feed? Write your fraction **in simplest form**.

$\frac{4}{9}$

Write as a fraction:

$\frac{36}{81}$ (wolves that Artemis fed)

81 (total number of wolves)

Now simplify the fraction:

(divide the numerator/denominator by common factors)

$\frac{36}{81} = \frac{4}{9}$ (÷9 above, ÷9 below)

9 is a common factor of 36 and 81.

$36 \div 9 = 4$

$81 \div 9 = 9$

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Writing a Quantity as a Fraction

Question 6

Hermes has 54 sheep.

He takes 42 sheep out to pasture.

What fraction of the sheep did Hermes take out to pasture? Write your fraction **in simplest form**.

Fraction: $\frac{\square}{\square}$

Question 7

Aphrodite has 15 pomegranates.

She needs 9 pomegranates to make a salad.

What fraction of the pomegranates did she use to make the salad? Write your fraction **in simplest form**.

Fraction: $\frac{\square}{\square}$

Question 8

Demeter has 35 grams of yeast.

She needs 14 grams to make bread.

What fraction of the yeast did she use to make the bread? Write your fraction **in simplest form**.

Fraction: $\frac{\square}{\square}$

Question 9

Poseidon catches 40 fish.

He cooks 16 fish for the family dinner.

What fraction of the fish did he cook for dinner? Write your fraction **in simplest form**.

Fraction: $\frac{\square}{\square}$

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Question 10

Hera has 49 clothes pegs.

She needs 21 clothes pegs to hang the washing.

What fraction of the clothes pegs did she use to hang the washing? Write your fraction **in simplest form**.

Fraction: $\frac{\square}{\square}$

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Exercise 5.9

A scientific calculator is permitted throughout this exercise.

Worked Example for Simple Questions

There are 150 counters in a bag.



42 of the counters are red.

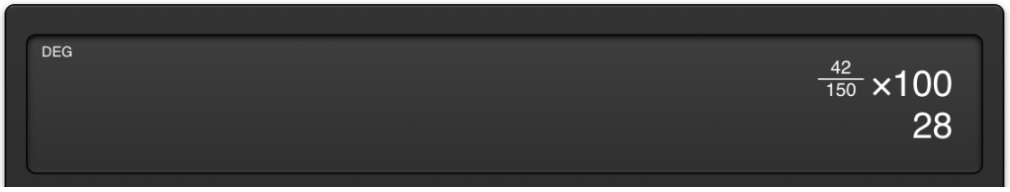
What **percentage** of the counters are red?

28 %

$$\% = \frac{\text{number of red}}{\text{total number}} \times 100$$

$$= \frac{42}{150} \times 100$$

$$= 28\%$$



Question 1

There are 220 counters in a bag.



99 of the counters are green.

What **percentage** of the counters are green?

____ %

Question 2

There are 215 counters in a bag.



86 of the counters are blue.

What **percentage** of the counters are blue?

____ %

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Writing a Quantity as a Percentage

Question 3

There are 105 counters in a bag.



21 of the counters are blue.

What **percentage** of the counters are blue?

$\square$ %

Question 4

There are 220 counters in a bag.



77 of the counters are yellow.

What **percentage** of the counters are yellow?

$\square$ %

Question 5

There are 215 counters in a bag.



43 of the counters are yellow.

What **percentage** of the counters are yellow?

$\square$ %

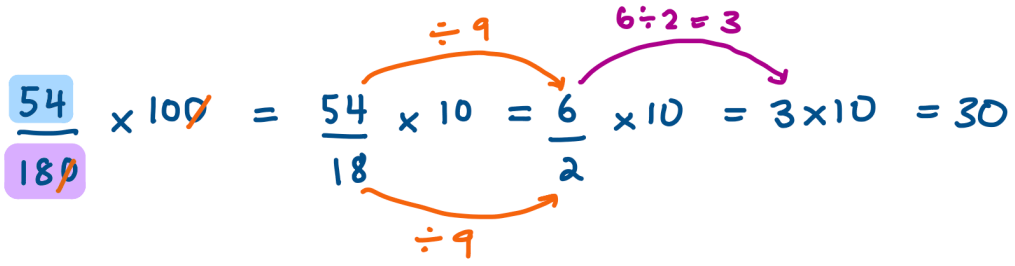
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Worked Example for Standard Questions

There are 180 movies in a collection.

54 of the movies are horror movies.

What percentage of the movies are horror movies? 30 %



54 ÷ 9 = 6

18 ÷ 9 = 2

Question 6

There are 70 fish in a tank.

14 of the fish are Angel fish.

What percentage of the fish are Angel fish?

____ %

Question 7

There are 60 marbles in a box.

18 of the marbles are yellow.

What percentage of the marbles are yellow?

____ %

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Writing a Quantity as a Percentage

Question 8

There are 90 rings in a jewellery store.

72 of the rings are gold.

What percentage of the rings are gold? ☐ %

Question 9

There are 20 kettlebells in a gym.

5 of the kettlebells are $10\ \text{kg}$ kettlebells.

What percentage of the kettlebells are $10\ \text{kg}$ kettlebells? ☐ %

Question 10

There are 80 pens in a box.

60 of the pens are black.

What percentage of the pens are black? ☐ %

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Exercise 5.11

A scientific calculator is permitted throughout this exercise.

Worked Example for Simple Questions



$\text{discount} = \frac{\%}{100} \times \text{price}$

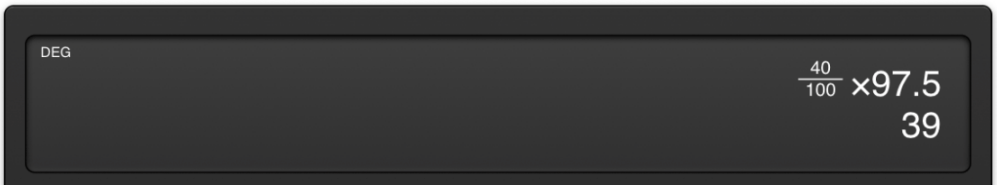
$= \frac{40}{100} \times 97.50$

$= \$39$

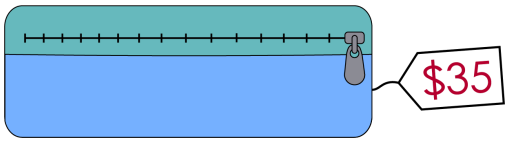
These shoes will be discounted in a 40% off sale.

By how much will they be discounted?

$ 39



Question 1

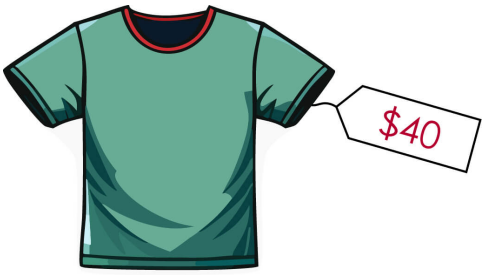


This pencil case will be discounted in a 15% off sale.

By how much will it be discounted?

$

Question 2



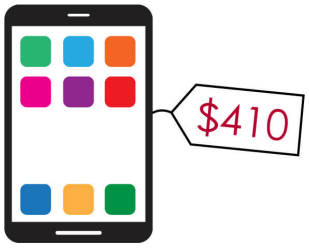
This t-shirt will be discounted in a 15% off sale.

By how much will it be discounted?

$

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Question 3



This phone will be discounted in a 30% off sale.

By how much will it be discounted?

$ ☐

Question 4



This jacket will be discounted in a 30% off sale.

By how much will it be discounted?

$ ☐

Question 5



This shirt will be discounted in a 15% off sale.

By how much will it be discounted?

$ ☐

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Worked Example for Standard Questions

Delilah buys a handbag with an original price of $\$815$.

The handbag is 12% off.

By how much will the handbag be discounted?

Give your answer correct to two decimal places.

$ 97.80

$12\% = 12 \div 100 = 0.12$

12% of \$815 = $0.12 \times 815 = 97.80$

Check

0.12×815
97.8

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Question 6

Billie buys a sunglasses with an original price of $\$568$.

The sunglasses are 32% off.

By how much will the sunglasses be discounted?

Give your answer correct to two decimal places.

$

Question 7

Cyrus buys a mascara with an original price of $\$36$.

The mascara is 17% off.

By how much will the mascara be discounted?

Give your answer correct to two decimal places.

$

Question 8

Jamie buys a book with an original price of $\$76$.

The book is 21% off.

By how much will the book be discounted?

Give your answer correct to two decimal places.

$

Question 9

Alice buys a watch with an original price of $\$755$.

The watch is 13% off.

By how much will the watch be discounted?

Give your answer correct to two decimal places.

$

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Question 10

Dani buys a moisturiser with an original price of $\$32$.

The moisturiser is 23% off.

By how much will the moisturiser be discounted?

Give your answer correct to two decimal places.

$\$$

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