

Simple interest

Year 8 About 70 minutes Calculator allowed 55 marks

Hints online, answers free with an account:
mathswariz.uk/worksheets/ks3-year-8-simple-interest/

Date _____

A Do Now

Quick questions to start.

- A1** Needed today [1 mark] **A2** Needed today [1 mark]
Work out 15% of £60. Write 0.035 as a percentage.

Answer

Answer

- A3** Year 7 [1 mark] **A4** Year 7 [1 mark]
Increase £80 by 15%. Solve $4x - 7 = 29$.

Answer

Answer

B Example, then your turn

Year 8

Simple interest is the same percentage of the ORIGINAL loan each time. Your teacher works through each example with you. Then try the one beside it.

EXAMPLE 1

Asha takes a loan of £720. She pays simple interest of 4% each month for 9 months. Work out the total interest she pays.

Hint Work out 4% of the loan once. She pays that amount every month.

- B1** Dev takes a loan of £1350. He [2 marks]
pays simple interest of 3%
each month for 8 months.
Work out the total interest he pays.

Answer

EXAMPLE 2

Ellis borrows £2400. He pays simple interest of 2.5% every three months for 2 years. Then he pays back the loan. How much does he pay altogether?

Hint Count the payments: there are 4 lots of three months in a year. Add the loan to the interest.

- B2** Grace borrows £3600. She [3 marks]
pays simple interest of 1.5%
each month for 3 years, then
pays back the loan. Work out
(i) the total interest, (ii) the
total amount she pays.

Answer (i) £ (ii) £

EXAMPLE 3

Hana has a loan of £850. She pays interest of £23.80 each month. What is the monthly rate of simple interest?

Hint Write the interest as a fraction of the loan, then change it to a percentage.

B3 Isaac has a loan of £1240. [3 marks]

After 4 months he has paid a total of £148.80 simple interest. Work out the monthly rate of interest.

Answer

EXAMPLE 4

Jade borrows £640 at 0.75% simple interest each week. After how many weeks has she paid £72 interest?

Hint Work out the interest for one week. How many of those make £72?

B4 Kofi borrows £2250 at 1.2% [2 marks]

simple interest each month. After how many months has he paid £432 interest?

Answer

EXAMPLE 5

Lena pays simple interest of 3.5% each year on a loan. After 6 years she has paid £1680 interest. How much did she borrow?

Hint In 6 years she pays $6 \times 3.5\%$ of the loan. That percentage of the loan is £1680.

B5 Marc pays simple interest of [3 marks]

2.5% each month on a loan. After 16 months he has paid £1380 interest. Work out how much he borrowed.

Answer

c Practice

Year 8

C1 Kira borrows £3200 at 2.25% [3 marks]
simple interest each month for 10 months. Leon borrows £4200 at 1.5% simple interest each month for a year. Who pays more interest, and by how much?

C2 Nia borrows £960 at 0.8% [2 marks]
simple interest each month for 2 years. What percentage of the loan is the total interest?

Answer

Answer

C3 Omar has a loan of £1800. He pays simple interest of 0.2% each week. How much interest does he pay in one year of 52 weeks? [2 marks]

Answer

C4 The total amount A paid back on a loan of £ P at $R\%$ simple interest for T payments is $A = P \left(1 + \frac{RT}{100} \right)$. Work out A when $P = 1500$, $R = 1.8$ and $T = 20$. [2 marks]

Answer

C5 Pia borrowed £2600. After 12 months of simple interest she paid back £3341 altogether. Work out the monthly rate of interest. [3 marks]

Answer

C6 Ravi puts £640 in a savings account that pays 2.5% simple interest each year. How much is in the account after 4 years? [2 marks]

Answer

D Exam-style questions

GCSE Foundation

D1 Jo borrows £1500 at 4% simple interest each year for 3 years. Jo says, "After the first year I owe £1560, so in the second year I pay 4% of £1560." [3 marks]

Explain why Jo is wrong. Work out the total interest Jo pays.

Answer Total interest £.....

D2 Sophie wants to borrow £6000 for 3 years. The table shows two offers.

(a) Work out the total interest Sophie would pay to Arden Bank. [2 marks]

Bank	Simple interest	Fee
Arden Bank	1.25% each month	none
Brook Bank	14% each year	£150

Answer

(b) Which offer costs Sophie less in total? You must show your working.

[3 marks]

Answer

Total for D2: 5 marks

D3 Tia has a loan of £1500. The graph shows the total simple interest she has paid after each month.

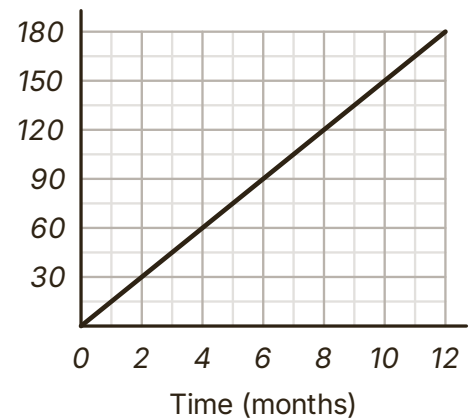
- (a) Write down the total interest she has paid after 4 months. [1 mark]

Answer

- (b) Work out the monthly rate of simple interest. [2 marks]

Answer

Total interest (£)



- (c) The loan lasts until she has paid £345 interest. How many months is this? [2 marks]

Answer

Total for D3: 5 marks

D4 Sam pays simple interest of 1.5% each month on a loan. After 2 years he has paid £1260 interest.

- (a) Work out how much Sam borrowed. [3 marks]

Answer

- (b) Work out the total amount Sam pays, the loan and the interest together. [1 mark]

Answer

Total for D4: 4 marks

- D5** Priya borrows £900. She pays it back in 12 equal monthly payments. The payments include simple interest of 2% of the loan each month. Work out the amount of each monthly payment. [3 marks]

Answer

E Extension

Stretch

No route is given. The hints are at the end of the sheet. Use one at a time.

- E1** A shop offers two ways to borrow money for 2 years. Plan A: simple interest of 1.5% of the loan each month. Plan B: simple interest of 15% of the loan each year, plus a fixed fee of £60. For what size of loan do the two plans cost the same? [4 marks]

Answer

Extension hints

Cover these with paper. Uncover one at a time.

- E1** **Hint 1** Call the loan £ P and write the cost of each plan in terms of P .
- Hint 2** Plan A: $24 \times 1.5\% = 36\%$, so $0.36P$. Plan B: $2 \times 15\% = 30\%$, so $0.30P + 60$.
- Hint 3** $0.36P = 0.30P + 60$, so $0.06P = 60$ and $P = 1000$. Check: both cost £360.

How did it go?

Colour one circle on each line: not yet, nearly, yes.

- I can work out simple interest for any number of payments. ☐ ☐ ☒
- I can find the rate or the number of payments from the interest. ☐ ☐ ☒
- I can find the size of a loan from the interest paid. ☐ ☐ ☒
- I can compare two loans and choose the one that costs less. ☐ ☐ ☒