

WORKSHEET

Simple interest

Simple interest formula $I = \frac{Prn}{100}$

1 Calculate the simple interest earned when:

- a \$4500 is invested at 7.5% p.a. for 5 years
- b \$11 000 is invested at 5.75% p.a. for $2\frac{1}{2}$ years
- c \$6800 is invested at 3.8% p.a. for 4 years
- d \$38 000 is invested at 10% p.a. for 9 months
- e \$25 400 is invested at 6.5% p.a. for 100 days
- f \$18 600 is invested at 0.73% per month for 1 year.

2 Calculate the time needed to invest:

- a \$5000 at 7% p.a. to earn \$2100 interest
- b \$16 700 at 4.8% p.a. to earn \$2004 interest

- c** \$7800 at 3.1% p.a. to earn \$181.35 interest
- d** \$28 950 at 1.25% per month to earn \$3618.75 interest.
- 3** Calculate the principal to be invested at:
- a** 11% p.a. for 4 years to earn \$3036 interest
- b** $9\frac{1}{2}\%$ p.a. for 2.5 years to earn \$2541.25 interest
- c** 5.35% p.a. for $1\frac{1}{4}$ years to earn \$1471.25 interest
- d** 15% p.a. for 9 months to earn \$3881.25 interest.
- 4** Calculate the simple interest rate (% p.a.) if:
- a** \$2300 invested for 6 years earns \$690 interest
- b** \$14 500 invested for $3\frac{1}{2}$ years earns \$2283.75 interest
- c** \$26 000 invested for 2 years earns \$5824 interest
- d** \$40 000 invested for 18 months earns \$4950 interest.

5 Final amount = Principal + Interest

Calculate the final amount when:

- a** \$3200 is invested at 4% p.a. for 2.5 years

 - b** \$9700 is invested at 13.1% p.a. for 11 months

 - c** \$29 000 is invested at 9.4% p.a. for 40 weeks

 - d** \$21 375 is invested at 8.7% p.a. for 200 days.
- 6** Sacha invested \$5000 for 4 years at an interest rate of 7% p.a. Calculate:
- a** the amount of interest Sacha earned on his investment

 - b** the total value of the investment after 4 years.
- 7** At the end of Year 10 Lucy has saved \$1500. She decides to invest her money for 2 years and spend it on a holiday when she finishes Year 12. At what simple interest rate does the money need to be invested in order for Lucy to have \$1770 to spend on her holiday?
- 8** On his 14th birthday, Bruno inherited \$2 000 000, but was not allowed access to the money until his 25th birthday. The money was immediately invested, earning 9% p.a.
- a** How long did Bruno have to wait before he could use his inheritance?

 - b** In the time the money was invested, how much interest did he earn?

c What was the total value of the investment on Bruno's 25th birthday?

On his 25th birthday, Bruno took out half of the original investment, and reinvest the remaining money (including the interest) at 7.8% p.a. for another 5 years.

d How much money did Bruno reinvest?

e How much interest did he earn on this money?

f What was the total value of his second investment after 5 years?

9 Sarah invests \$20 000 at 14% p.a. Answering to the nearest whole number of years, how long will she need to invest the money for its total value to have increased to over \$30 000?

10 Pedro wants to invest some money for his retirement. At 8% p.a. simple interest, how much money would he need to invest to earn \$250 000 interest over 15 years?

11 Eliana has \$4000 to invest. How long will she need to invest it at 4.25% p.a. simple interest for its value to have increased to \$6000? Answer to the nearest year.

12 Tony and Colette have different views on investment. Tony believes the time the money is invested is the most important factor, while Colette believes it is the interest rate that matters most. Both have \$5000 to invest. Tony invests his money for 8 years at 3% p.a. Colette invests her money for 3 years at 8% p.a.

a How much interest does Tony earn?

b How much interest does Colette earn?

c Who do you think had the better investment? Why?

13 Antonia invests \$100 000 for $3\frac{1}{2}$ years at 8.05% p.a. simple interest. She then adds in the interest and reinvests the money for another 7 years.

a How much interest does Antonia's investment earn in the first $3\frac{1}{2}$ years?

b What is the total value of her first investment?

c What is the simple interest rate of the second investment if it earns \$89 722.50 interest by the end of the 7 years?

14 Anh owns a restaurant. After his first year of business he manages to save \$25 000 from the profits. He invests this money the following year at 5.75% p.a.

a How much interest did Anh earn on this investment?

Anh added this interest into his savings account. At the end of his second year of business Anh had another \$32 000 to add to his investment, which continued to earn 9.75% p.a.

b How much money was invested in Anh's account at the start of the second year of investment?

c How much interest did Anh's investment earn in the second year?

d What was the total value of Anh's investment after 2 years?

e How much of this was earned as interest on his savings?

Answers

- 1 a** \$1687.50
b \$1581.25
c \$1033.60
d \$2850
e \$452.33
f \$1629.36
- 2 a** 6 years
b 2.5 years
c 9 months
d 10 months
- 3 a** \$6900
b \$10 700
c \$22 000
d \$34 500
- 4 a** 5% p.a.
b 4.5% p.a.
c 11.2% p.a.
d 8.25% p.a.
- 5 a** \$3520
b \$10 864.81
c \$31 096.92
d \$22 393.97
- 6 a** \$1400
b \$6400
- 7** 9% p.a.
- 8 a** 11 years
b \$1 980 000
c \$3 980 000
d \$2 980 000
e \$1 162 200
f \$4 142 200
- 9** 4 years
- 10** \$208 333.33
- 11** 12 years
- 12 a** \$1200
b \$1200
c Colette, because both investments earned the same amount of interest, but hers was over a shorter period of time
- 13 a** \$28 175
b \$128 175
c 10% p.a.
- 14 a** \$1437.50
b \$58 437.50
c \$5697.66
d \$64 135.16
e \$7135.16