Walt Increase or decrease an amount by the given percentage
Success Criteria I know to calculate the percentage of the amount: new amount = old amount + increase new amount = old amount − decrease or find the percentage of the amount once you have increased or decreased the percentage.

EXAMPLE 1

Using method 1:

a increase \$50 by 70%

First find 70% of \$50.

$0.70 \times 50 = \$35$ or $\frac{70}{100} \times 50 = \$35$

a New amount = old amount + increase
= \$50 + \$35
= \$85

b decrease \$50 by 70%

Remember to find the new amount first, then add or subtract it from the original amount.

b New amount = old amount − decrease
= \$50 − \$35
= \$15

1 Complete to find the increased amounts using method 1.

a \$400 by 15%

$\frac{15}{100} \times$ ___ = ___

New amount = \$400 + ___
= \$460

b 200 g by 40%

$\frac{\square}{\square} \times 200 =$ ___

New amount = 200 g + ___
= ___ g

2 Increase the following amounts using method 1.

a \$300 by 15% **b** 100 g by 40% **c** 100 L by 8%
d \$90 by 70% **e** 68 by 20% **f** 380 by 50%

3 Decrease the following amounts using method 1.

a \$24 by 50% **b** 60 by 70% **c** 50 kg by 40%
d 90 m by 30% **e** 150 km by 8% **f** 80 L by 70%

22nd June
Walt calculate increase and decrease of an amount using a multiplier method
Success criteria Creating a multiplier Add the percent to 100% and change it to a fraction you can change it to a decimal also see the examples given by teacher.

EXAMPLE 2

a Find the percentage of an amount that is needed to increase the amount by 88%.
b Find the percentage of an amount that is needed to decrease the amount by 14%.

a 100% + 88% = 188%

b 100% − 14% = 86%

4 Find the percentage of an amount that is needed to increase the amount by:

a 11% **b** 38% **c** 55% **d** 92% **e** 68%
f 86% **g** 39% **h** 107% **i** 156% **j** 213%

5 Find the percentage of an amount that is needed to decrease the amount by:

a 9% **b** 15% **c** 18% **d** 23% **e** 32%
f 47% **g** 66% **h** 51% **i** 95% **j** 78%

EXAMPLE 2

a Find the percentage of an amount that is needed to increase the amount by 88%.
b Find the percentage of an amount that is needed to decrease the amount by 14%.

a $100\% + 88\% = 188\%$

b $100\% - 14\% = 86\%$

4 Find the percentage of an amount that is needed to increase the amount by:

a 11%	**b** 38%	**c** 55%	**d** 92%	**e** 68%
f 86%	**g** 39%	**h** 107%	**i** 156%	**j** 213%

5 Find the percentage of an amount that is needed to decrease the amount by:

a 9%	**b** 15%	**c** 18%	**d** 23%	**e** 32%
f 47%	**g** 66%	**h** 51%	**i** 95%	**j** 78%

EXAMPLE 3

Using method 2:
a increase \$50 by 70%
b decrease \$50 by 70%

a $100\% + 70\% = 170\%$

170% of $\$50 = \frac{170}{100} \times 50$

$= \$85$

b $100\% - 70\% = 30\%$

30% of $\$50 = 0.3 \times 50$

$= \$15$

6 Complete to find the increased amounts using method 2.

a 70 km by 10%

$100\% + 10\% =$ ___%

Find 110% of 70 km.

$\therefore 1.1 \times 70 =$ ___ km

b 20 t by 80%

$100\% + 80\% =$ ___%

Find 180% of 20 t.

$\therefore \frac{180}{100} \times 20 =$ ___ t

Extension word problems

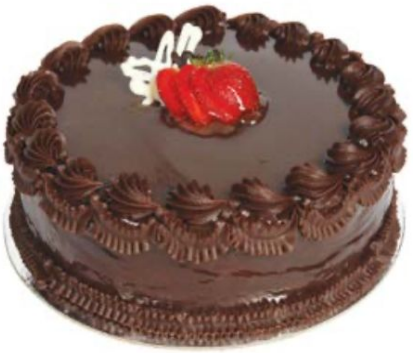
7 Increase the following using method 2.

a 70 km by 10%
b 60 L by 80%
c $1200 by 60%
d 9 L by 70%
e 28 km by 50%
f 15 m by 5%

8 Decrease the following using method 2.

a 20 t by 80%
b 40 km by 70%
c 55 L by 60%
d $900 by 50%
e 60 g by 40%
f 70 m by 10%

9 Read the following problems. Decide whether it is an increase or a decrease then solve.



a A baker increased the price of chocolate mud cakes sold to restaurants by 70%. What is the new selling price of a chocolate mud cake if the original price was $5.00?
b Kayla's home in Mountain View Estate was purchased for $160 000. Its value has increased by 62%. Calculate its present value.
c A sound system priced at $980 is reduced by 15% during a sale. Calculate the sale price of the sound system.
d Al's Cars has discounted all cars by 10% for the weekend. Calculate the discounted price of a car valued at $22 000.
e Jessica purchased watches for $5.50 and marked them up by 80% before selling them in her jewellery store. Calculate the selling price of the watches to the nearest dollar.

10 In an analysis of the Rugby League grand final the following statistics were gathered.

Aspect	Winning team	Losing team
Time in possession (min)	48	32
Line breaks	15	11
Completed sets	18	12
Tackles	235	303

a Calculate the percentage time in possession for the winning team.
b Calculate the percentage of total tackles for each team.
c Compare the percentage time in possession with the percentage of tackles. What comment can be made?

Answers

1 a $\frac{15}{100} \times 400 = 60$

New amount $= \$400 + \$60 = \$460$

b $\frac{40}{100} \times 200 = 80$

New amount $= 200\text{ g} + 80\text{ g} = 280\text{ g}$

2 a \$345 **b** 140 g **c** 108 L

d \$153 **e** 81.60 **f** 570

3 a \$12 **b** 18 **c** 30 kg

d 63 m **e** 138 km **f** 24 L

4 a 111% **b** 138% **c** 155% **d** 192%

e 168% **f** 186% **g** 139% **h** 207%

i 256% **j** 313%

5 a 91% **b** 85% **c** 82% **d** 77%

e 68% **f** 53% **g** 34% **h** 49%

i 5% **j** 22%

6 a $100\% + 10\% = 110\%$

$\therefore 1.1 \times 70 = 77$ km

b $100\% + 80\% = 180\%$

$\therefore \frac{180}{100} \times 20 = 365$ t

7 a 77 km **b** 108 L **c** \$1920 **d** 15.30 L

e 42 km **f** 15.75 m

8 a 4 t **b** 12 km **c** 22 L **d** \$450

e 36 g **f** 63 m

9 a Increase, \$8.50 **b** Increase, \$259 200

c Decrease, \$833 **d** Decrease, \$19 800

e Increase, \$9.90 or \$10 to nearest dollar

10 a 60% **b** 44% and 56%

c More time in possession, fewer tackles made.