

# 3 Part of an Amount

## A A Percentage of an Amount

### WITHOUT A CALCULATOR

Examples : a) Work out  $\frac{2}{5}$  of \$35

b) Work out 30% of 60 kg.

Working : a) Since  $\frac{1}{5}$  of 35 = 7, then  $\frac{2}{5}$  of 35 =  $2 \times 7 = 14$   
Answer : \$14

b) Since 10% of 60 =  $\frac{1}{10}$  of 60 = 6  
then 30% of 60 =  $3 \times 6 = 18$   
Answer : 18 kg

1 Work out **WITHOUT** a calculator.

- a)  $\frac{2}{3}$  of 15 kg .....
- b)  $\frac{5}{8}$  of \$32 .....
- c)  $\frac{3}{10}$  of 500 L .....
- d) 20% of \$90 .....
- e) 60% of 10 kg .....
- f) 25% of 1200 mL .....
- g) 75% of 40 mm .....

### WITH A CALCULATOR

On the calculator 'of' is keyed in as  $\boxed{\times}$ .

Examples : a) Calculate  $\frac{5}{8}$  of 45 kg.

b) Calculate 12% of \$19.75

Working : a) This translates to  $\frac{5}{8} \times 45$

Key in :  $\boxed{5} \boxed{\div} \boxed{8} \boxed{\times} \boxed{45} \boxed{=}$

Answer : 28.13 kg (2 dp)

b) This translates to  $\frac{12}{100} \times 19.75$

Key in :  $\boxed{12} \boxed{\div} \boxed{100} \boxed{\times} \boxed{19.75} \boxed{=}$

Answer : \$2.37

2 Calculate (round to 2 dp when needed).

- a)  $\frac{5}{6}$  of 81 kg .....
- b)  $\frac{3}{4}$  of 5 L .....
- c)  $\frac{2}{3}$  of \$65.25 .....
- d) 18% of 5 L .....
- e) 35% of \$42.75 .....
- f) 63% of 1.2 tonne .....
- g) 105% of 3.6 m .....

## B Increase or Decrease an Amount

**Increase** (or raise) means make larger, add on.

**Decrease** (or reduce) means make smaller, take off.

Examples : a) Decrease 72 kg by  $\frac{1}{9}$ .

b) Raise \$6.80 by 15%.

Working : a)  $\frac{1}{9}$  of 72 = 8

Decrease 72 kg by 8 kg.

Answer : 64 kg

b) 15% of \$6.80 =  $\boxed{15} \boxed{\div} \boxed{100} \boxed{\times} \boxed{6.80} \boxed{=}$  1.02

Increase \$6.80 by \$1.02.

Answer : \$7.82

1 If possible use brainpower. Calculators allowed.

- a) Raise \$45 by  $\frac{2}{9}$ . .....
- b) Decrease 15 L by  $\frac{3}{5}$ . .....
- c) Reduce 600 m by 5%. .....
- d) Increase 84.5 kg by 4%. .....
- e) Decrease \$16.50 by 18%. .....

2 There is a sale on at a hardware store. How much is the sale price for an electric drill priced at \$120?

All Prices Reduced  
by 20%  
This Week Only

- 3 At birth a baby weighed 3300 g. In a month her weight increased by 22%. How much did the baby weigh aged 1 month? .....
- 4 Cars decrease in value by 15% each year. How much would a car be worth next year if its value now is \$9500. ....

# 7 Statistical Literacy - continued

## A Thinking Statistically - continued

4 What does the advertisement not tell you about people who buy tickets for the lottery.

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5 More accidents do occur with drivers travelling less than 100 km/h than with drivers travelling more than 100 km/h. Why do you think this is the case?

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6 Assuming that going on 'our diet plan' does result in the weight loss shown in the graph, does this support the claim that is in the title?

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7 Do you think that this shows that the total number of males from the school who walk is greater than the total number of females from the school who walk?

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**BE IN TO WIN**

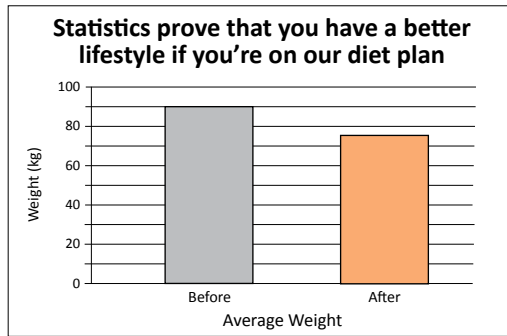
200 people have now won more than \$100,000 in our lottery

**Buy Now**

**UP THE SPEED LIMIT**

More accidents occur with drivers travelling less than 100 km/h than with drivers travelling more than 100 km/h.

**Sign our petition  
increase the speed limit**

The average weight of 100 people before and after they started our using our diet plan.

Our survey shows that more males than females walk to school

	Do Not Walk	Walk
Males	10	30
Females	5	15

We sampled 60 of the 1200 students in our school



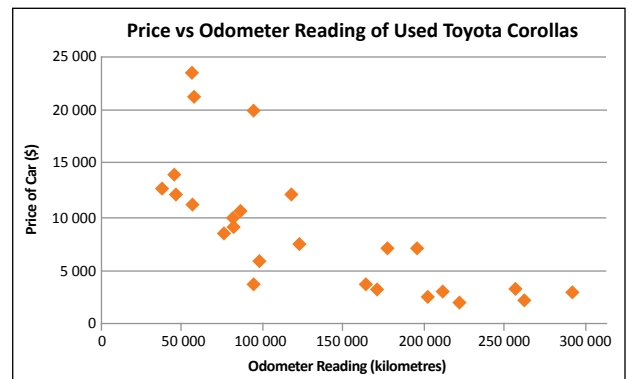
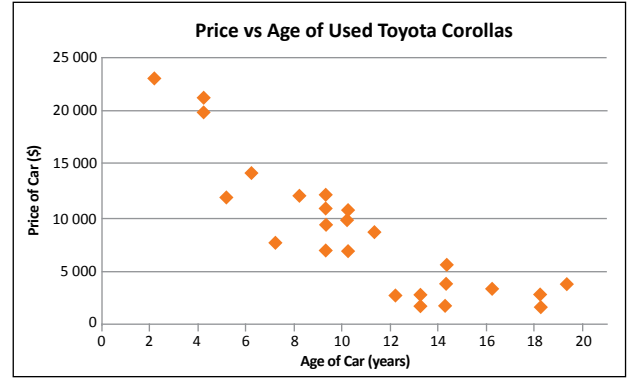
**A Used Toyota Corollas**

Ethan wants to find out whether you can predict the price of a used car by its age or by its odometer reading. He selected a sample of Toyota Corollas for sale on Trade Me. For each car in the sample he wrote down age, odometer reading and price. Then he made these two scatter graphs.

1a) How many cars were sampled? .....

b) Give approximate age, odometer reading and price of the most expensive used Toyota Corolla in the sample.  
 .....  
 .....

c) Why are scatter graphs appropriate for this investigation?  
 .....  
 .....  
 .....  
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2a) To predict the price of a used car, would you use age or would you use odometer reading? Justify your answer.  
 .....  
 .....  
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 .....

b) Draw a trend line and estimate a price for a Toyota Corolla that is . . .

i) 10 years old with 120,000 km on the clock. .... ii) 3 years old with 50,000 km on the clock. ....

c) Select one of the cars that seems good value for money. Give the details and explain why you choose that one.  
 .....  
 .....

3 Explain why a single straight line would not be the best trend line for either scatter plot. Describe a better type of trend line.  
 .....  
 .....



4 Estimate : i) the median age, ii) the median price, iii) the median odometer reading of the used Toyota Corollas in this sample.  
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Interpreting Data

**A Misleading Graphs**

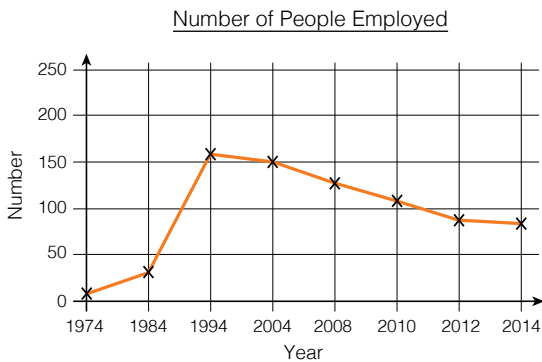
If the rules for drawing graphs are not followed carefully, the graph can be confusing or even misleading.

Check points for graphs :

- ◆ Is it the right choice of graph for the type of data?
- ◆ Is the title clear?
- ◆ In a graph with axes :
  - i) are the axes labelled?
  - ii) do the scales go up in equal steps?
  - iii) is an axis that does not start at zero misleading?
- ◆ For pie graphs and strip graphs :
  - i) are the sections or sectors correctly drawn?
  - ii) is there a key for each part?
- ◆ Avoid drawing 3D pie graphs and 3D bar graphs as they can be misleading by inflating one category above the others.
- ◆ Does the graph support claims that have been made?

1 These graphs have been produced by an exporting company. In each case identify any misleading features.

a) Identify one misleading feature on this graph.



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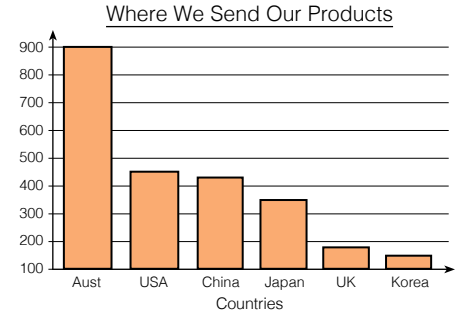
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b) Identify two misleading features on this graph.



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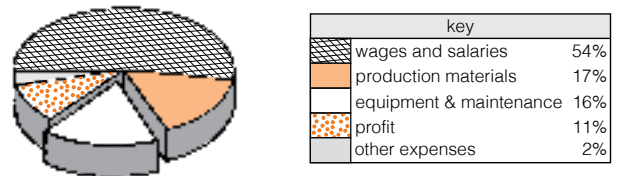
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c)



i) Identify two misleading features on this graph.

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ii) The company claims that it pays its employees well. Does this graph support the claim? Give statistical reasons for your answer.

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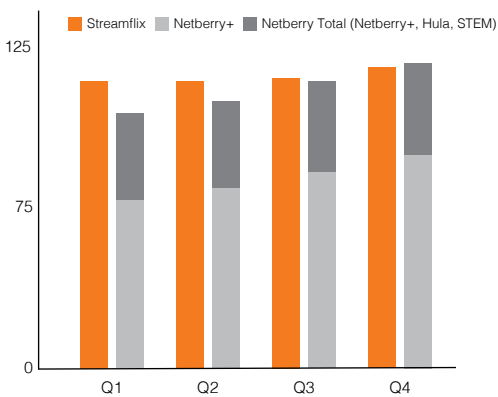
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### A Investigating Streaming Data

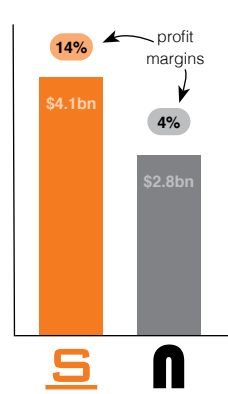
#### Resource 3

## STREAMFLIX vs. **netberry+** STATS

### Subscriber Count 2022

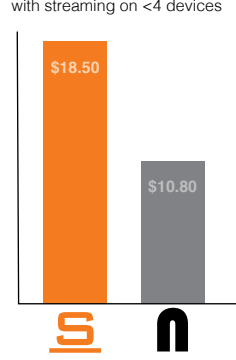


### Net Profit 2022

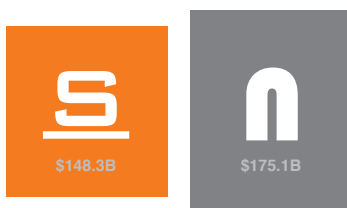


### Monthly Subscription Pricing

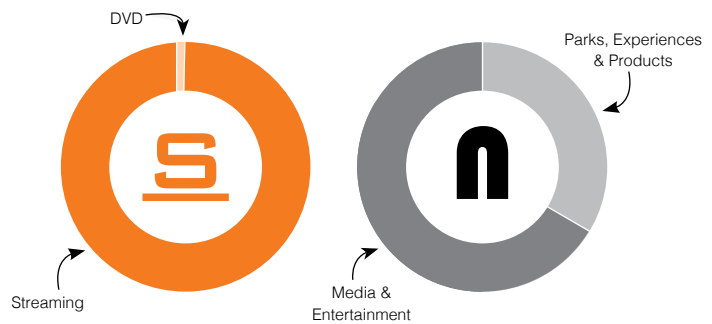
with streaming on <4 devices



### Market Capitalisation



### Revenue Breakdown 2022





**A** Mobile Mania

Resource 3

## AVERAGE SMARTPHONE USAGE

How is the average person using their mobile device on a daily basis.

