

# ***Excel*** **Basic Skills**

# **Money, Time, Fractions and Decimals**

**5-6** **Years**

**Ages  
10-12**

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**Alan Horsfield & Elaine Horsfield**

**A tip to help you!** There is no 24:00 in digital time. One minute after 23:59 a digital clock will display 00:00, which is the beginning of a new day.

1 On a 24-hour digital clock what is the time 5 hours after half past 9 in the evening? Circle a letter.

- A       B       C       D

2 On a 24-hour digital clock what is the time 14 hours after 6:15 pm? Circle a letter.

- A       B       C       D

3 Tran went to a concert which started at 9:30 pm and lasted for  $4\frac{1}{2}$  hours. At what 24-hour time did the concert conclude?

4 This is the time Taya leaves on a flight to Singapore on Tuesday evening. The flight takes  $8\frac{1}{2}$  hours. On what day and at what 24-hour time does she arrive at her destination?




5 **Let's go over your work!**

a What is the 24-hour time 6 hours after half past 8 in the evening? Circle a letter.

- A       B       C       D

b What is the 24-hour time 24 hours after 6:15 pm? Circle a letter.

- A       B       C       D

c A cross-country hike started at 10:30 am and lasted for  $12\frac{1}{2}$  hours. At what 24-hour time did the hike conclude?



d This is the time Mia leaves on an interstate bus trip on Monday evening. The bus trip takes  $9\frac{1}{2}$  hours. On what day and at what 24-hour time did she arrive at her destination? Write your answer on the line.




e What is the 24-hour time 4 hours after a quarter to 10 in the evening? Circle a letter.

- A       B       C       D

**A tip to help you!** The labels *am* and *pm* are short for *ante meridiem*, meaning 'before midday', and *post meridiem*, meaning 'after midday'. Alphabetically *a* (for *ante*) comes before *p* (for *post*) just as morning comes before afternoon.

1 What is the time 3 hours before 1 am on Tuesday? Circle a letter.

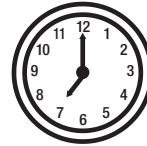
- A 4 o'clock Monday morning  
 B 10 o'clock Tuesday morning  
 C 10 o'clock Monday night  
 D 9 o'clock Monday evening

2 What is the time 8 hours before 3 am on Saturday? Circle a letter.

- A 11 pm Friday      B 7 pm Friday      C 5 pm Friday      D 1 pm Friday

3 What 24-hour time will a digital clock show 1 hour before 1 am?

4 Mrs Want's baby woke up on Thursday morning at the time shown on this clock. The baby had slept for 8 hours. On what day and at what time did the baby go to sleep? Write your answer on the line.



.....

5 **Let's go over your work!**

a What is the time 7 hours before 6 am on Saturday? Circle a letter.

- A 11 pm Friday      B 1 am Friday      C 5 am Friday      D 1 pm Friday

b What is the time 10 hours before 2 am on Sunday? Circle a letter.

- A 4 o'clock Saturday afternoon  
 B 10 o'clock Monday morning  
 C 12 o'clock midnight Saturday  
 D 12 o'clock midday Saturday

c What 24-hour time will a digital clock show 4 hours before 4 am? Write your answer in the box.

d Chas finished watching a late-night movie on Monday at this time. The movie had run for 3 hours. On what day and at what time did the movie start? Write your answer on the line.



.....

e This is the time at which Maggie arrived by plane on early Saturday morning. The trip had taken  $8\frac{1}{2}$  hours. On what day and at what 24-hour time did she leave on her plane trip? Write your answer on the line.



.....

**A tip to help you!** Many digital clocks and watches have a button that will convert back and forth from 12-hour time to 24-hour time.

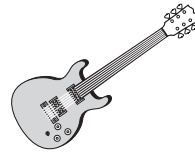
- 1 What is the 24-hour time 5 hours before half past 3 in the afternoon? Circle a letter.

A B C D 

- 2 What is the 24-hour time 14 hours before 12:15 pm? Circle a letter.

A B C D 

- 3 Edmund went to a rock concert which finished at 1:30 am.  
It had been going for  $6\frac{1}{2}$  hours.  
At what 24-hour time did the concert start?




- 4 This is the time Rhona arrived on a flight from Bangkok on Saturday evening. The flight took  $8\frac{1}{2}$  hours.  
On what day and at what time did she leave Bangkok?  
Write your answer on the line.




### 5 Let's go over your work!

- a What is the 24-hour time 6 hours before half past 4 in the morning? Circle a letter.

A B C D 

- b What is the 24-hour time 24 hours before 9:45 pm? Circle a letter.

A B C D 

- c A cross-country endurance ride which finished at 10:30 pm had lasted for  $12\frac{1}{2}$  hours.  
At what 24-hour time did the ride begin?




- d This is the time Rachael finished reading a book on Sunday morning.  
She had been reading for  $5\frac{1}{2}$  hours.  
On what day and at what 24-hour time did she start her book?




- e What is the 24-hour time 10 hours before a quarter to 8 in the morning?  
Circle a letter.

A B C D

Duration is the time it takes something to happen. The duration of a school test may be 30 minutes. Elapsed time is the time that has already passed. (An hour had elapsed before the bell rang.)

**A tip to help you!** To find the amount of elapsed time, count forward from the starting time.

Work out the elapsed times to complete these tables.

**1**

| Start time | End time | Elapsed time |
|------------|----------|--------------|
| 9.30 am    | 1.30 pm  |              |
| 5.45 am    | 1.15 pm  |              |
| 2.00 pm    | 12 noon  |              |





**2**

| Start time | End time | Elapsed time |
|------------|----------|--------------|
| 10:00 am   | 11:45 am |              |
| 09:00 am   | 05:30 pm |              |
| 08:15 pm   | 02:45 am |              |

**3**

| Start time | End time   | Elapsed time |
|------------|------------|--------------|
| 0100 hours | 2200 hours |              |
| 0530 hours | 1000 hours |              |
| 0030 hours | 1100 hours |              |

**4**

| Start time  | End time  | Elapsed time |
|---|---|--------------|
|   |   |              |
|  |  |              |

**5 Let's go over your work!**

Work out the elapsed times to complete these tables.

**a**

| Start time | End time | Elapsed time |
|------------|----------|--------------|
| 9.15 am    | 12.30 pm |              |
| 5.45 pm    | 12.15 pm |              |



**b**

| Start time | End time | Elapsed time |
|------------|----------|--------------|
| 09:20 am   | 11:30 am |              |
| 08:45 am   | 01:30 pm |              |

**c**

| Start time | End time   | Elapsed time |
|------------|------------|--------------|
| 1300 hours | 1415 hours |              |
| 2145 hours | 2315 hours |              |

**d**

| Start time  | End time  | Elapsed time |
|---|---|--------------|
|  |  |              |

**e** A maths test had a duration of 45 minutes. If the start time was half past 9, what time was the digital finish time?

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# 19 Time zones

Each new day starts at midnight and lasts for 24 hours.

Look at this 24-hour clock. There is no 24:00.

Midnight is 00:00, the start of a new day. The shaded hours on the clock indicate the night hours.

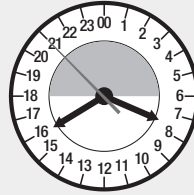
The hours of day and night are not usually this evenly divided.

The world is divided into 24 **time zones**.

Australia has three time zones depending on state arrangements.

The Central Zone is half an hour behind the Eastern Zone.

The Western Zone is 3 hours behind the Eastern Zone during summer.



**A tip to help you!** Each time zone to the next is an hour apart. As time zones don't neatly match national and state borders, most countries adjust the time zones to match their borders.

- 1 In summer when it is 8 o'clock in Sydney (NSW), what is the time in Perth (WA)? .....
- 2 When it is 4:30 in Sydney, what is the time in Adelaide? .....
- 3 When it is 3:30 in Adelaide, what is the time in Sydney? .....
- 4 In summer a jet left Sydney at 10 pm and took 3 hours to fly to Perth. At what time did it arrive? .....

**5 Let's go over your work!**

The Earth rotates so at any one moment different places are experiencing different times.

a New Zealand is 2 hours ahead of Victoria. If it is 5.45 am in Victoria, what time is it in New Zealand?

b England is 12 hours behind Australia. If it is 2 pm on Friday in Australia, what is the time in England?  
Using 24-hour time, what time will a digital clock show?

What day will it be? .....

c When it is 2 am in Perth what is the time in Sydney?

d South Australia is half an hour behind NSW. If it is  hours in South Australia, what is the time in NSW? .....

e In summer Sydney is 3 hours ahead of Perth in WA.

The clock shows the time in Sydney.  
What is the time in Perth? Circle a letter.

- A 8 o'clock      B 9 o'clock      C 2 o'clock      D 3 o'clock



A timetable is a chart showing departure and arrival times for forms of transport. It can also be a plan of times at which things are scheduled to take place (lesson timetable).

**A tip to help you!** Timetables can be for periods of minutes or hours or longer periods, such as days. A timetable may show arrival and departure times of transport services or be a plan of times at which events start and end.

This is the timetable for the *Ghan* train service from Darwin to Adelaide.

|                      |                  |
|----------------------|------------------|
|                      | <b>Wednesday</b> |
| Depart Darwin        | 10.00 am         |
| Arrive Katherine     | 1.40 pm          |
| Depart Katherine     | 5.00 pm          |
|                      | <b>Thursday</b>  |
| Arrive Alice Springs | 10.00 am         |
| Depart Alice Springs | 9.45 pm          |
|                      | <b>Friday</b>    |
| Arrive Coober Pedy   | 9.00 am          |
| Depart Coober Pedy   | 7.40 pm          |
|                      | <b>Saturday</b>  |
| Arrive Adelaide      | 12.50 pm         |

- 1 Over how many days of the week does the train travel on its trip from Darwin to Adelaide? ..... days
- 2 What is the duration of the stop in Alice Springs? .....
- 3 What is the arrival time in Adelaide in 24-hour digital time?
- 4 How long is the leg of the journey from Katherine to Alice Springs? Circle a letter.  
 A 5 hours                      B 10 hours                      C 15 hours                      D 17 hours

**5 Let's go over your work!**

This is the return timetable from Adelaide to Darwin.

|                      |                |
|----------------------|----------------|
|                      | <b>Sunday</b>  |
| Depart Adelaide      | 12.15 pm       |
|                      | <b>Monday</b>  |
| Arrive Maria         | 6.00 am        |
| Depart Maria         | 8.00 am        |
| Arrive Alice Springs | 1.45 pm        |
| Depart Alice Springs | 6.00 pm        |
|                      | <b>Tuesday</b> |
| Arrive Katherine     | 9.00 am        |
| Depart Katherine     | 1.00 pm        |
| Arrive Darwin        | 5.30 pm        |

- a How many days does it take to go from Adelaide to Darwin? ..... days
- b How much time elapses between arrival and departure times in Alice Springs? .....
- c What is the arrival time in Darwin in 24-hour digital time?
- d How long is there between the departure times in Maria and Alice Springs? Circle a letter.  
 A 2 hours                      B 10 hours                      C 14 hours                      D 16 hours
- e When did the *Ghan* arrive in Alice Springs on Monday? Circle a letter.  
 A 1345 hours                      B 1305 hours                      C 1405 hours                      D 1045 hours

The top number of a fraction is called the **numerator**. The bottom number is the **denominator**.

A fraction looks like this:  $\frac{\text{numerator}}{\text{denominator}}$ , e.g.  $\frac{1}{5}$

When the numerator and the denominator are the same, the number is one whole, e.g.  $\frac{2}{2} = 1$ .

**A tip to help you!** To compare fractions when the numerators are the same keep in mind that the larger the denominator, the smaller the fraction, e.g.  $\frac{1}{10}$  is smaller than  $\frac{1}{2}$ .

1 Circle a letter for the fraction that is less than one-sixth ( $\frac{1}{6}$ ).

A  $\frac{1}{8}$

B  $\frac{1}{2}$

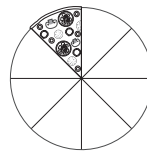
C  $\frac{1}{3}$

D  $\frac{1}{5}$

2 How many fifths is the same as two-tenths ( $\frac{2}{10}$ )?

Write a number in the box.

3 What fraction represents the amount of pizza left on the tray?




Write your answer as a fraction.

4 Shade half ( $\frac{1}{2}$ ) of this rectangle.



5 Let's go over your work!

a Circle a letter for the fraction that is greater than one-eighth ( $\frac{1}{8}$ ).

A  $\frac{1}{9}$

B  $\frac{1}{10}$

C  $\frac{1}{3}$

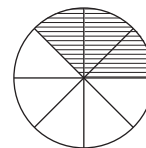
D  $\frac{1}{20}$

b How many tenths are in one whole?

.....

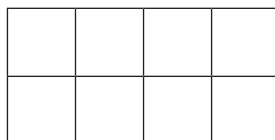
c What fraction of this circle is shaded?

Write the numerator and denominator in the boxes.

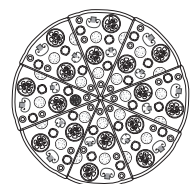




d Shade one-quarter ( $\frac{1}{4}$ ) of this rectangle.



e A whole pizza is cut ready to serve. Danny takes one piece. What fraction of the pizza does Danny take?



This is a number line. The arrows indicate that the line can continue in both directions. Fractions can be shown on a number line.



**A tip to help you!** To compare fractions when the numerators are the same keep in mind that the smaller the denominator, the larger the fraction, e.g.  $\frac{1}{10}$  is larger than  $\frac{1}{100}$ .

- 1 What is one-third ( $\frac{1}{3}$ ) of 24?  
Circle a letter.

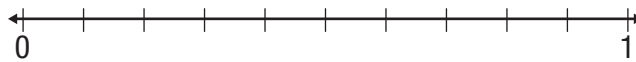
A 6

B 8

C 9

D 21

- 2 Put a cross (X) on this number line at a point to indicate one-fifth ( $\frac{1}{5}$ ).



- 3 If one-third of a number is 5, what is the whole number?  
Write your answer on the line.

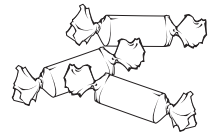
- 4 Jon has a bag of 12 lollies.  
Ben took one-third of Jon's lollies and Glenn took one-quarter of the lollies.  
How many lollies did Jon have left? Circle a letter.

A 0

B 3

C 5

D 7



- 5 **Let's go over your work!**

- a What is one-fifth of 35? Circle a letter.

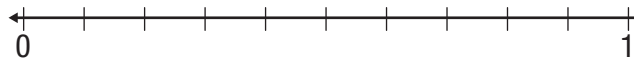
A 5

B 6

C 7

D 30

- b Put a cross (X) on this number line near a point to indicate one-third ( $\frac{1}{3}$ ).



- c If one-eighth of a number is 4, what is the whole number?  
Write your answer on the line.

- d Tanya had a bag of 16 marbles. Nancy won half of Tanya's marbles and Glenn won one-quarter of Tanya's marbles.  
How many marbles did Tanya have left? Circle a letter.

A 2

B 3

C 4

D 6

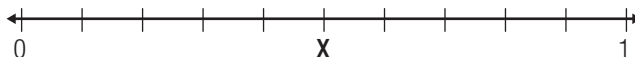


- e Which is the greater number:  $\frac{1}{5}$  of 25 or  $\frac{1}{3}$  of 33?  
Write your answer on the line.

Mixed numerals are whole numbers with a fraction, e.g.  $3\frac{1}{4}$ .

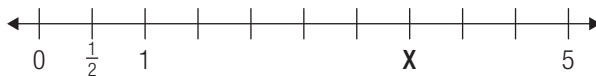
**A tip to help you!** Number lines can show numbers smaller than or greater than zero. Numbers smaller than zero are called negative numbers.

- 1 What fraction does X represent on this number line? Write your answer in the boxes.



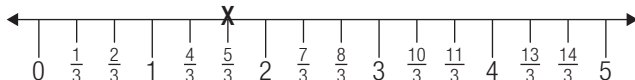
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- 2 What is the missing number for the position X on this number line? Write your answer in the boxes.



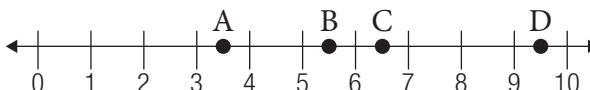
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- 3 What would be the mixed numeral for the cross on this number line?



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- 4 Which dot represents  $5\frac{1}{2}$ ? Circle a letter.



5 Let's go over your work!

- a What is the missing fraction on this number line? Write your answer in the boxes.



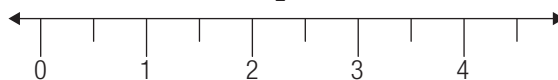
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- b What is the mixed numeral for the position X?

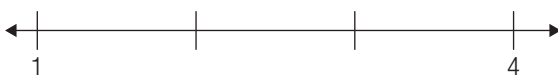


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- c Put an X on this number line to show  $3\frac{1}{2}$ .



- d Put an X on this number line to show where  $2\frac{1}{4}$  might be located.



- e Put an X on this number line to show where  $2\frac{1}{2}$  might be located.



A proper fraction is a fraction that has a numerator less than the denominator, e.g.  $\frac{5}{7}$ . Proper fractions are all less than one whole.

**A tip to help you!** When adding fractions with the same denominator simply add the numerators. The denominator does not change, e.g.  $\frac{7}{20} + \frac{9}{20} = \frac{16}{20}$  ( $9 + 7 = 16$ ).

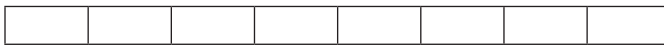
- 1** This line is broken up into 10 parts or tenths. Shade  $\frac{3}{10}$  and then shade another  $\frac{4}{10}$ . How many tenths are shaded?



You can see that 3 tenths + 4 tenths = 7 tenths.

$$\frac{\square}{10}$$

- 2** This line is broken up into eight parts or eighths. Shade  $\frac{1}{8}$  and then shade another  $\frac{5}{8}$ . How many eighths are shaded?



$$\frac{\square}{8}$$

- 3** Fill in the boxes to show exercise 2 above as an addition of fractions.

$$\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$$

- 4** Solve this addition of fractions problem.

$$\frac{2}{9} + \frac{5}{9} = \frac{\square}{\square}$$

**5 Let's go over your work!**

- a** This line is broken up into 10 parts or tenths. Shade  $\frac{1}{10}$  and then shade another  $\frac{7}{10}$ . How many tenths are shaded?



You can see that  $\square$  tenths +  $\square$  tenths =  $\square$  tenths.

$$\frac{\square}{10}$$

- b** Shade  $\frac{5}{12}$  of this line and then shade another  $\frac{5}{12}$ . What fraction of the line is shaded?



(Note: this could be renamed as  $\frac{5}{6}$ .)

$$\frac{\square}{\square}$$

- c** Fill in the boxes to show exercise b above as an addition of fractions.

$$\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$$

- d** Solve this addition of fractions problem.

$$\frac{2}{7} + \frac{3}{7} = \frac{\square}{\square}$$

- e** Aziza shaded  $\frac{2}{5}$  of this whole line. She then shaded another  $\frac{3}{5}$  of the line.



What fraction of her line is shaded?

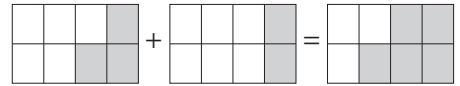
$$\frac{\square}{\square}$$

Another name for this fraction is .....

An improper fraction is a fraction that has a numerator greater than the denominator, e.g.  $\frac{7}{5}$ . Improper fractions can be converted to mixed numerals, e.g.  $\frac{7}{5} = 1\frac{2}{5}$ .

**A tip to help you!** When adding fractions with the same denominator simply add the numerators.

The denominator does not change, e.g.  $\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$  ( $3 + 2 = 5$ ).



If the numerator is greater than the denominator you change the fraction into a mixed numeral.

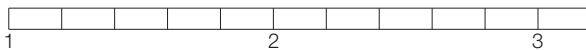
- 1 This number line which starts at one is broken up into quarters. Shade  $\frac{3}{4}$  and then shade another  $\frac{3}{4}$ . How many quarters are shaded?



3 quarters + 3 quarters = 6 quarters.  $\frac{6}{4}$  is greater than 1 whole. It is  $1\frac{2}{4}$  ( $1\frac{1}{2}$ ).

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| 4 |

- 2 Each section of this number line is broken up into five parts or fifths. Shade  $\frac{4}{5}$  and then shade another  $\frac{3}{5}$ . How many fifths are shaded?



Is this an improper fraction? \_\_\_\_\_

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- 3 Fill in the boxes to show exercise 2 above as an addition of fractions. Change this answer to a mixed numeral.

$$\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$$

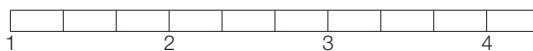
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- 4 Solve this addition of fractions problem.  $\frac{7}{10} + \frac{9}{10} = \frac{\square}{\square}$  As a mixed numeral:

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5 Let's go over your work!

- a Each section of this number line is broken up into three parts or thirds. Shade  $\frac{2}{3}$  and then shade another  $\frac{2}{3}$ . How many thirds are shaded?

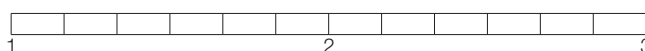


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| 3 |

You can see that  $\square$  thirds +  $\square$  thirds =  $\square$  thirds. As a mixed numeral:

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- b Each section of this number line is broken up into six parts or sixths. Shade  $\frac{5}{6}$  of this line and then shade another  $\frac{4}{6}$ .



This could be renamed as:

|  |
|--|
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What fraction of the line is shaded?

|  |
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- c Fill in the boxes to show exercise b above as an addition of fractions.

$$\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$$

Change this to a mixed numeral.

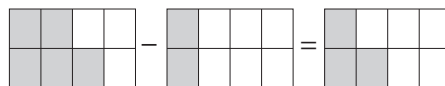
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When the numerator is the same as the denominator it represents one whole or 1,

e.g.  $\frac{2}{2} = 1$  whole or simply 1.  $\frac{3}{3}, \frac{4}{4}, \frac{5}{5}$ , and so on all equal 1.

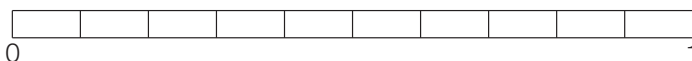
**A tip to help you!** When subtracting fractions with the same denominator simply find the difference between the numerators,

e.g.  $\frac{5}{8} - \frac{2}{8} = \frac{3}{8}$  ( $5 - 2 = 3$ ). The denominator does not change.



1 Solve.  $\frac{5}{8} - \frac{3}{8} = \frac{\square}{8}$

2 This line is broken up into 10 parts or tenths. Ten-tenths = 1 (whole). Shade  $\frac{7}{10}$ .

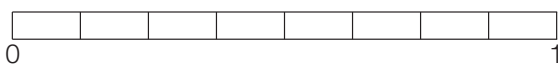


How many tenths are unshaded?

$\frac{\square}{10}$

You can see that 10 tenths - 7 tenths = 3 tenths or  $1 - \frac{7}{10} = \frac{3}{10}$ .

3 This line is broken up into eight parts or eighths. Shade  $\frac{3}{8}$ .



How many eighths are unshaded?

$\frac{\square}{8}$

4 Fill in the boxes to show exercise 3 above as a subtraction of a fraction from 1.

$1 - \frac{\square}{\square} = \frac{\square}{\square}$

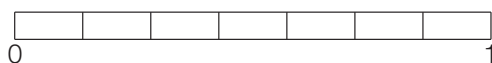
5 Let's go over your work!

a Solve.  $\frac{9}{10} - \frac{7}{10} = \frac{\square}{10}$

b Solve this subtraction of fractions problem.  $\frac{11}{12} - \frac{3}{12} = \frac{\square}{12}$

c This line is broken up into seven parts or sevenths to make 1 whole. Shade  $\frac{3}{7}$ . How many sevenths are unshaded?

$\frac{\square}{7}$

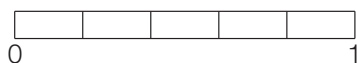


You can see that  $\square$  sevenths -  $\square$  sevenths =  $\square$  sevenths.

d Fill in the boxes to show exercise b above as a subtraction of fractions.

$1 - \frac{\square}{\square} = \frac{\square}{\square}$

e Darryl shaded  $\frac{5}{5}$  of this whole line.



What fraction of the line is unshaded?

$\frac{\square}{\square}$

Whole numbers are sometimes written as a numerator over 1, e.g.  $\frac{6}{1} = 6$  wholes or 6.

**A tip to help you!** To change an improper fraction to a mixed number you divide the numerator by the denominator, e.g. to change the improper fraction of  $\frac{5}{2}$  to a mixed number you divide 5 by 2.  $5 \div 2$  is 2 remainder 1 out of 2 or  $2\frac{1}{2}$ .

1 Solve.  $\frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \frac{\boxed{\phantom{000}}}{2}$

Now change this to a mixed numeral.

|  |  |
|--|--|
|  |  |
|  |  |

2 Solve.  $2 - \frac{3}{4} = \frac{\boxed{\phantom{000}}}{\boxed{\phantom{000}}}$

3 Solve.  $\frac{2}{5} + \frac{2}{5} + \frac{3}{5} = \frac{\boxed{\phantom{000}}}{5}$

Now change this to a mixed numeral.

|  |  |
|--|--|
|  |  |
|  |  |

4 Solve.  $3 - \frac{1}{4} = \frac{\boxed{\phantom{000}}}{\boxed{\phantom{000}}}$

5 **Let's go over your work!**

a Solve.  $\frac{4}{10} + \frac{7}{10} + \frac{5}{10} = \frac{\boxed{\phantom{000}}}{10}$

Now change this to a mixed numeral.

|  |  |
|--|--|
|  |  |
|  |  |

b Solve.  $2 - \frac{1}{10} = \frac{\boxed{\phantom{000}}}{\boxed{\phantom{000}}}$

c Solve.  $\frac{2}{8} + \frac{3}{8} + \frac{1}{8} + \frac{3}{8} = \frac{\boxed{\phantom{000}}}{8}$

Now change this to a mixed numeral.

|  |  |
|--|--|
|  |  |
|  |  |

d Solve.  $1 - \frac{3}{10} - \frac{2}{10} = \frac{\boxed{\phantom{000}}}{10}$

Simplify the fraction.

|  |
|--|
|  |
|  |

e Phil had \$25. He spent  $\frac{5}{5}$  of his money.

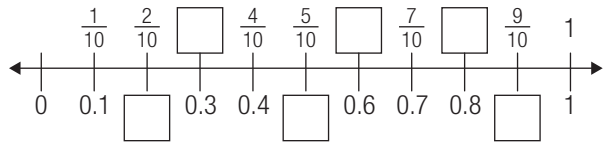
How much did he have left? Write your answer on the line.

.....

Decimals are a way of expressing tenths and hundredths, e.g.  $\frac{3}{10} = 0.3$  and  $\frac{5}{10} = 0.5$ .  
 Whole numbers can be included in decimals:  $7\frac{3}{10} = 7.3$ .  
 Decimals always have a number left of the point. This can be 0 if the amount is less than one.  
 Decimals can also be shown on number lines.

**A tip to help you!** A quick trick to count decimals is to 'think' of the decimal as a whole number, e.g. What is the next number in this sequence? 2.1, 2.3, 2.5,  $\square$   
 It looks like counting in the 20s (21, 23, 25). The next term will be 27 then 29 with a decimal point (2.7, 2.9).

- 1 Fill in the empty boxes to complete this diagram.



- 2 What are the decimal fractions for:

$4\frac{9}{10}$ ? .....,  $\frac{3}{10}$ ? .....,  $11\frac{1}{10}$ ? .....,  $10\frac{7}{10}$ ? .....

- 3 Rearrange these decimals from smallest to largest.

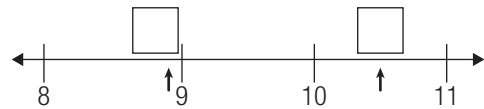
1.5    2.7    0.9    11.3    6.6

Start here. ...., ....., ....., .....

- 4 If  $\frac{3}{10} + \frac{7}{10} + \frac{9}{10} = 1\frac{9}{10}$ , then  $0.3 + 0.7 + 0.9 =$  .....

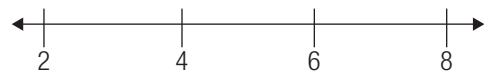
5 Let's go over your work!

- a Add the correct decimal for each box as indicated by the arrow.



- b What is the decimal for  $13\frac{1}{2}$ ? ..... (Remember:  $\frac{5}{10}$  is the same as  $\frac{1}{2}$ .)

- c Put a cross to show where 5.5 would be on this number line.



- d Add these fractions and then change the answer into a decimal.

$$\frac{1}{2} + \frac{3}{10} + 2\frac{1}{10} + \frac{9}{10} = \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array}$$

As a decimal. ....

- e Rearrange these decimals from largest to smallest.

3.3    0.7    10.9    22.2    3.5

Start here. ...., ....., ....., .....

Decimals are a way of expressing hundredths and thousandths, e.g. 0.25 is 25 hundredths or  $\frac{25}{100}$  or  $\frac{1}{4}$ . 0.65 is 65 hundredths or  $\frac{65}{100}$  or  $\frac{13}{20}$ . 3.50 can be written as 3.5 or  $3\frac{1}{2}$ . 50 out of 100 is the same as 5 out of 10. Both =  $\frac{1}{2}$ .  $3.426 = 3\frac{426}{1000}$ . Decimal places begin with tenths, followed by hundredths, then thousandths.

**A tip to help you!** To change hundredths to decimals simply delete the denominator and then add a zero and a point before the numerator, e.g.  $\frac{61}{100} = 0.61$ . To change thousandths to decimals simply delete the denominator and then add a zero and a point before the numerator, e.g.  $\frac{373}{1000} = 0.373$ ,  $4\frac{250}{1000} = 4.250$  (or 4.25).

- 1 This is a small part of a number line showing hundredths. Put an X at the point 0.06 and a dot on 0.15.



- 2 This is part of a number line showing hundredths. Put an X at the point 0.31 and a dot on 0.27.



- 3 What fraction out of 100 is 0.75?  $\frac{\square}{\square}$  Now simplify this fraction.  $\frac{\square}{\square}$

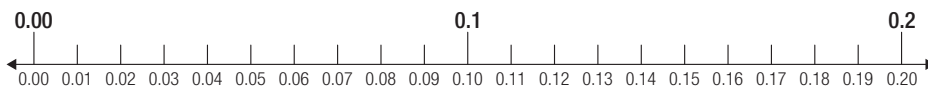
- 4 Rearrange these decimals from largest to smallest.

3.13    0.77    10.90    22.02    3.15

Start here. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

5 Let's go over your work!

- a This is a small part of a number line showing hundredths. Put an X at the point 0.07 and a dot on 0.11.



- b What does 0.03 represent? Tick a box.  3 tenths     3 hundredths  
 c Put a cross to show where 2.90 would be on this number line.



- d This is part of a number line. Put an X at the point 0.79.



- e Solve  $0.1 + 1.01 = ?$  Circle a letter.

A 0.2                      B 1.2                      C 2.01                      D 1.11



**A tip to help you!** When counting with fractions remember to simplify when the numerator and the denominator can be divided by the same number, e.g.  $\frac{20}{50}$  can be simplified by dividing both numerator and denominator by 10 ( $\frac{2}{5}$ ).

Zeros on the end of decimals of two or more places (e.g. 3.60) do not change the value of the decimal if the zero is removed ( $3.60 = 3.6$ ,  $2.750 = 2.75$ ).

**1** What is the next term in this sequence? Write your answer on the line.

$\frac{3}{4}, 1\frac{1}{2}, 2\frac{1}{4}, 3, 3\frac{3}{4},$  .....

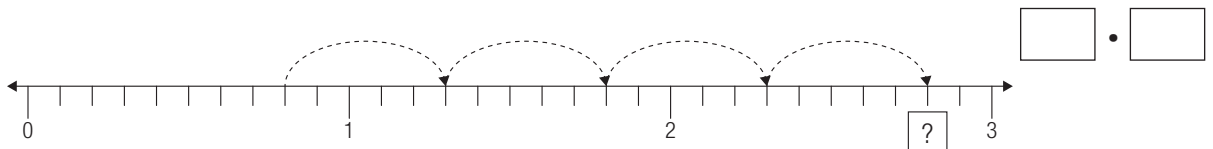
**2** What is the next term in this sequence? Write your answer on the line.

2.15, 2.45, 2.75, 3.05, .....

**3** What is the missing term in this sequence? Write your answer on the line.

$2\frac{1}{2}, 5,$  .....,  $10, 12\frac{1}{2}, 15$

**4** Which decimal can replace the question mark? Write your answer in the boxes.



**5 Let's go over your work!**

**a** What is the next term in this sequence? Write your answer on the line.

$\frac{4}{5}, 1\frac{3}{5}, 2\frac{2}{5}, 3\frac{1}{5}, 4,$  .....

**b** What is the missing term in this sequence? Write your answer on the line.

2.4, 3.0, 3.6, ....., 4.8, 5.4

**c** Mal began counting backwards by 0.5 from 10.3.  
What would be the fourth number he should say after 10.3?

**d** What is the missing term in this sequence? Write your answer on the line.

1.35, 1.75, 2.15, ....., 2.95, 3.35

**e** Bill began counting forwards from 0.3 in jumps of 0.7.  
What will be Bill's fifth term after 0.3? Circle a letter.

A 3.1

B 3.2

C 3.5

D 3.8

### Unit 15 Hours forward across days (digital) Page 15

- 1 B (To find 5 h after half past 9 (9:30 pm) count on 5 h:  
 $9 + 5\frac{1}{2} = 14\frac{1}{2}$  or 2:30 am the next day.)
- 2 A (6:15 pm is in the evening. Count on 14 h to 8:15 am.)
- 3 02:00 (Count on  $4\frac{1}{2}$  from  $9\frac{1}{2}$ .)
- 4 06:30 Wednesday (The flight leaves at 10:00 pm Tuesday.  
 Count on  $8\frac{1}{2}$  h  
 $(10 + 8\frac{1}{2} = 18\frac{1}{2})$ . This is 6:30 am.)
- 5 a A (Half past 8 is 8:30 pm. Count on 6 h to 2:30 am)  
 b D (24 h later is also 6:15 as it is the same time next day.  
 To convert to 24-hour time add 12 (18:15).)  
 c 23:00 (The hike started at 10:30 am and finished  $12\frac{1}{2}$  h  
 later. Add half an hour which gives you 11 am. Then add  
 another 12 h to give you 23:00.)  
 d 07:45 on Tuesday (Mia left at 10:15 pm on Monday. Half an  
 hour later is 10:45. Count on 9 h.)  
 e B (1:45 on the next day)

### Unit 16 Hours back across days Page 16

- 1 C (1 am is early morning. Count back to the previous day.)
- 2 B (3 am is early morning. Count back to the previous day.)
- 3 00:00 (1 am is very early in the day. 1 h before that is  
 midnight which is 00 in 24-hour time.)
- 4 11 pm, Wednesday (The baby woke up at 7 am. Count back 8 h  
 to 11 pm on Wednesday night.)
- 5 a A (Count back 7 h from 6 am Saturday to 11 pm Friday.)  
 b A (Count back 10 h from 2 am Sunday to 4 pm Saturday.)  
 c 00:00 (4 am is early morning. 4 h before that is midnight  
 which is 00 in 24-hour time.)  
 d 10:30 pm, Sunday (The movie finished at 1:30 am. Count  
 back 3 h to 10:30 pm on Sunday, the previous day.)  
 e 17:00, Friday

### Unit 17 Hours back across days (digital) Page 17

- 1 C    2 C
- 3 19:00 (Count back  $6\frac{1}{2}$  h from 1:30 am.)      4 11:00, Saturday
- 5 a D (Count back 6 h from 4:30 am to 22:30 the previous day.)  
 b D (There will be no change of clock time. It will be the  
 same time on the previous day. Convert to 24-hour time by  
 adding 12.)  
 c 10:00 (Count back 12 h then another  $\frac{1}{2}$  h (10 am).)  
 d 22:00, Saturday (10 pm)  
 e B (Count back 10 h from 7:45 am.)

### Unit 18 Duration and elapsed time Page 18

1

| Start time | End time | Elapsed time     |
|------------|----------|------------------|
| 9.30 am    | 1.30 pm  | 4 h              |
| 5.45 am    | 1.15 pm  | $7\frac{1}{2}$ h |
| 2.00 pm    | 12 noon  | 22 h             |





2

| Start time | End time | Elapsed time     |
|------------|----------|------------------|
| 10:00 am   | 11:45 am | 1 h 45 min       |
| 09:00 am   | 05:30 pm | $8\frac{1}{2}$ h |
| 08:15 pm   | 02:45 am | $6\frac{1}{2}$ h |

3

| Start time | End time   | Elapsed time      |
|------------|------------|-------------------|
| 0100 hours | 2200 hours | 21 h              |
| 0530 hours | 1000 hours | $4\frac{1}{2}$ h  |
| 0030 hours | 1100 hours | $10\frac{1}{2}$ h |

4

| Start time  | End time  | Elapsed time |
|---|---|--------------|
|  |  | 30 min       |
|  |  | 4 h 15 min   |

5 a

| Start time | End time | Elapsed time |
|------------|----------|--------------|
| 9.15 am    | 12.30 pm | 3 h 15 min   |
| 5.45 pm    | 12.15 pm | 6 h 30 min   |



b

| Start time | End time | Elapsed time |
|------------|----------|--------------|
| 9.20 am    | 11.30 am | 2 h 10 min   |
| 08.45 am   | 01.30 pm | 4 h 45 min   |

c

| Start time | End time   | Elapsed time |
|------------|------------|--------------|
| 1300 hours | 1415 hours | 1 h 15 min   |
| 2145 hours | 2315 hours | 1 h 30 min   |

d

| Start time  | End time  | Elapsed time |
|---|---|--------------|
|  |  | 4 h 10 min   |

e 10:15 (The finish time was 45 min after 9:30.)



### Unit 19 Time zones Page 19

- 5 o'clock (Take 3 h from the Sydney time.)
- 4 o'clock (4:00) (Take half an hour from the Sydney time.)
- 4:00 (Add half an hour to the Adelaide time.)
- 10 pm (It took 3 h to travel there but you need to subtract 3 h for the time difference. There is no change in time.)
- a 7:45 NZ time was 2 h ahead of Victoria.  
b 2:00 am on the morning of the same day (Friday)  
c 5:00 am (Add 3 h to the Sydney time.)  
d 1700 hours (Add half an hour to get the Sydney time.)  
e A (Count back 3 h from 11 o'clock.)


### Unit 20 Timetables Page 20

- 4 days (Wednesday to Saturday)
- 11 h 45 min (2 h from 10 am to midday and 9 h 45 min to 9:45)
- 12:50 (There is no change; 12 o'clock is part of the 24-hour clock.)
- D (7 h from 5 pm to midnight then another 10 h to 10 am: 17 h)
- a 3 days (Sunday to Tuesday)  
b 4 h 15 min                      c 17:30 (5:30 + 12)  
d B (4 h from 8 am to midday then another 6 h to 6 pm: 10 h)  
e A (1:45 pm converts to 1345 hours (145 + 1200).)

### Unit 21 Common unit fractions Page 21

- A    2  $\frac{1}{5}$  ( $\frac{2}{10}$  can be reduced to  $\frac{1}{5}$  by dividing both the numerator and denominator by 2.)
- $\frac{1}{8}$  (1 piece out of 8)    4 4 out of 8 squares are shaded. (There is more than one way you can shade the correct number of squares.) 
- a C    b 10 (10 tenths in 1 whole or  $\frac{10}{10} = 1$ )  
c  $\frac{3}{8}$  is shaded. (The circle has 8 parts.)  
d 2 out of 8 squares are shaded. (There is more than one way you can shade the correct number of squares.) 
- $\frac{1}{8}$  (There are 8 pieces of pizza in 1 whole. Danny takes  $\frac{1}{8}$  of the pizza.)

### Unit 22 More on common unit fractions Page 22

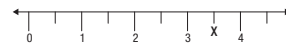
- B (Divide 24 by 3.)
- The line is divided into tenths. ( $\frac{2}{10}$  is  $\frac{1}{5}$ .)  

- $15 (\frac{1}{3}$  of number = 5;  $3 \times 5 = 15$ ;  $\frac{3}{3}$  of number = 15)
- $5 (\frac{1}{3}$  of 12 = 4;  $\frac{1}{4}$  of 12 = 3; 7 lollies were taken;  $12 - 7 = 5$ )
- a C (Divide 35 by 5.)  
b The line is divided into tenths.  $\frac{1}{3}$  of 10 is a bit more than 3 ( $3\frac{1}{3}$ ).  
c  $32 (\frac{1}{8}$  = 4;  $4 \times 8 = 32$ ;  $\frac{8}{8} = 32$ )  
d C ( $\frac{1}{2}$  of 16 = 8;  $\frac{1}{4}$  of 16 = 4;  $8 + 4 = 12$ ;  $16 - 12 = 4$ )  
e  $\frac{1}{3}$  of 33 ( $\frac{1}{5}$  of 25 is 5;  $\frac{1}{3}$  of 33 is 11)

### Unit 23 Common fractions on number lines Page 23

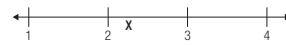
- $\frac{1}{2}$  (X is at the halfway mark which is the fifth part of 10 or  $\frac{1}{2}$ .)
- $3\frac{1}{2}$  (Each section of the line is the same as  $\frac{1}{2}$ .)
- $1\frac{2}{3}$  (X is at  $\frac{5}{3}$ . Change this to a mixed numeral by dividing the numerator by the denominator:  $5 \div 3 = 1\frac{2}{3}$ .)
- B (This dot is halfway between 5 and 6.)
- a  $\frac{7}{8}$  (The line is divided into eighths.)

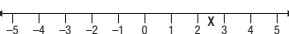
b  $3\frac{1}{3}$  (Each section of the line is divided into thirds.)

c The line is in divisions of one-half.



d The missing numbers are 2 and 3.



e 

### Unit 24 Adding fractions Page 24

- $\frac{7}{10}$     2  $\frac{6}{8}$  (or  $\frac{3}{4}$ )    3  $\frac{1}{8} + \frac{5}{8} = \frac{6}{8}$  ( $1 + 5 = 6$ )    4  $\frac{7}{9}$
- a  $\frac{8}{10}$  (or  $\frac{4}{5}$ ); 1, 7, 8    b  $\frac{10}{12}$  (or  $\frac{5}{6}$ )    c  $\frac{5}{12} + \frac{5}{12} = \frac{10}{12}$  ( $= \frac{5}{6}$ )  
d  $\frac{5}{7}$  ( $2 + 3 = 5$ )    e  $\frac{5}{5}$  or 1 whole

### Unit 25 More on adding fractions Page 25

- $\frac{6}{4}$  ( $3 + 3 = 6$ )    2  $\frac{7}{5}$ ; yes,  $\frac{7}{5}$  is an improper fraction.
- $\frac{4}{5} + \frac{3}{5} = \frac{7}{5} = 1\frac{2}{5}$     4  $\frac{16}{10}$  or  $1\frac{6}{10}$  (or  $1\frac{3}{5}$ )
- a  $\frac{4}{3}$ ; you can see that 2 thirds + 2 thirds = 4 thirds =  $1\frac{1}{3}$ .  
b  $\frac{9}{6}$  are shaded or  $1\frac{3}{6}$  (or  $1\frac{1}{2}$ ).    c  $\frac{5}{6} + \frac{4}{6} = \frac{9}{6} = 1\frac{3}{6}$  (or  $\frac{1}{2}$ )

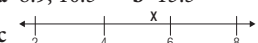
### Unit 26 Subtracting fractions Page 26

- $\frac{2}{8}$  (or  $\frac{1}{4}$ ) ( $5 - 3 = 2$ )    2  $\frac{3}{10}$  ( $10 - 7 = 3$ )
- $\frac{5}{8}$  ( $8 - 3 = 5$ )    4  $1 - \frac{3}{8} = \frac{5}{8}$
- a  $\frac{2}{10}$  (or  $\frac{1}{5}$ ) ( $9 - 7 = 2$ )    b  $\frac{8}{12}$  (or  $\frac{2}{3}$ ) ( $11 - 3 = 8$ )  
c  $\frac{4}{7}$  ( $7 - 3 = 4$ )    d  $1 - \frac{3}{7} = \frac{4}{7}$     e  $\frac{0}{5}$  (or nothing)

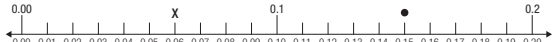



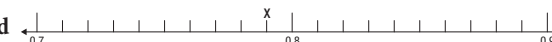
### Unit 27 Mixed exercises with whole numbers Page 27

- 1  $\frac{3}{2} = 1\frac{1}{2}$     2  $1\frac{1}{4}$  (2 is the same as  $\frac{8}{4}$ .  $\frac{8}{4} - \frac{3}{4} = \frac{5}{4} = 1\frac{1}{4}$ .)  
 3  $\frac{7}{5} = 1\frac{2}{5}$     4  $2\frac{3}{4}$  (Think of 3 wholes as 2 wholes +  $\frac{4}{4}$ .  $\frac{4}{4} - \frac{1}{4} = \frac{3}{4}$ .)  
 5 a  $\frac{16}{10} = 1\frac{3}{5}$  (Add the tenths:  $4 + 7 + 5 = 16$  (tenths) =  $1\frac{6}{10}$  (or  $1\frac{3}{5}$ ).)  
 b  $1\frac{9}{10}$   
 c  $\frac{9}{8} = 1\frac{1}{8}$  (Add the eighths:  $2 + 3 + 1 + 3 = 9$  (eighths) =  $1\frac{1}{8}$ .)  
 d  $\frac{5}{10} = \frac{1}{2}$  ( $1 = \frac{10}{10}$ . Subtract  $\frac{3}{10}$ , then  $\frac{2}{10}$ .)  
 e 0 ( $\frac{5}{5}$  is the same as 1 whole. Phil spent all his money.  
 He had nothing left—\$0.)

### Unit 28 Decimal fractions Page 28

- 1 Top line:  $\frac{3}{10}, \frac{6}{10}, \frac{8}{10}$ . Bottom line: 0.2, 0.5, 0.7, 0.9.  
 2 4.9, 0.3, 11.1, 10.7    3 0.9, 1.5, 2.7, 6.6, 11.3    4  $\frac{19}{10} = 1.9$   
 5 a 8.9, 10.5    b 13.5  
 c  5 is halfway between 4 and 6.  
 5.5 is halfway between 5 and 6.  
 d  $3\frac{8}{10} = 3.8$  ( $\frac{1}{2} = \frac{5}{10}$ . Add the tenths  $5 + 3 + 1 + 9 = 18$  tenths =  $1\frac{8}{10}$ . Add the 2 wholes =  $3\frac{8}{10}$  or 3.8.)  
 e 22.2, 10.9, 3.5, 3.3, 0.7

### Unit 29 Decimals Page 29

- 1   
 2   
 3  $\frac{75}{100} = \frac{3}{4}$     4 22.02, 10.90 (can be written as 10.9), 3.15, 3.13, 0.77  
 5 a   
 b 3 hundredths  
 c   
 d   
 e D This can be done as an addition. 
$$\begin{array}{r} 0.10 \\ + 1.01 \\ \hline 1.11 \end{array}$$

### Unit 30 Counting with fractions and decimals Page 30

- 1  $4\frac{1}{2}$  (The sequence is increasing by  $\frac{3}{4}$ .)  
 2 3.35 (The sequence is increasing by 0.30 (or 0.3).)  
 3  $7\frac{1}{2}$  (The sequence is increasing by  $2\frac{1}{2}$ .)  
 4 2.8 (Each division has ten parts. Each jump is of five small parts. The first 'jump' is from 0.8 to 1.3. Add jumps of 5. The next term after 1.3 is 1.8 and then 2.3 and finally 2.8.)  
 5 a  $4\frac{4}{5}$  (The sequence is increasing by  $\frac{4}{5}$ .)  
 b 4.2 (The sequence is increasing by 0.6.)  
 c 8.3 (The sequence is decreasing by 0.5. After 10.3 Mal would say: 9.8, 9.3, 8.8, 8.3.)  
 d 2.55 (The sequence is increasing by 0.4.)  
 e D ( $5 \times 0.7 = 3.5$ . Add 0.3, the starting number, to get 3.8.)