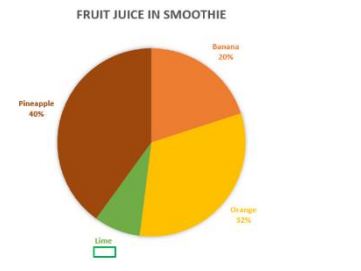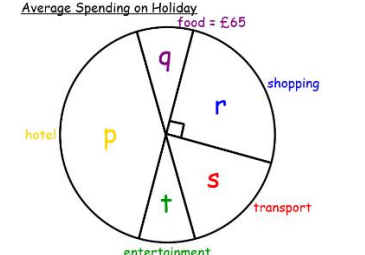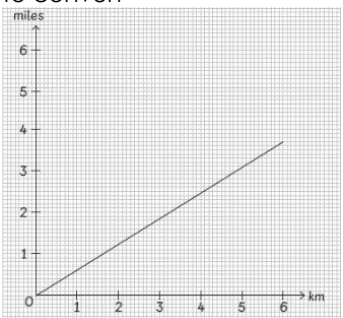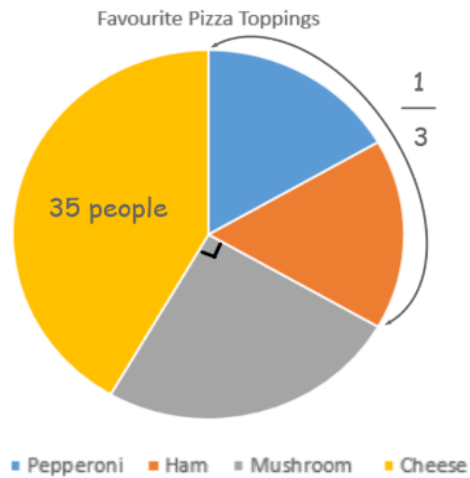# Year 6 maths – Week Beginning 27.4.20

Theme	Pie Charts lesson 1 (of 3) Interpreting Pie Charts in Numbers and Fractions	Pie Charts lesson 2 (of 3) Interpreting Pie Charts with Percentages and amounts	Pie Charts lesson 3 (of 3) Adding fractions with the same denominator.	Line Graphs Lesson 1 (of 2) Drawing Line Graphs	Line Graphs Lesson 2 (of 2) Interpreting Data from Line Graphs
Factual fluency (to aid fluency)	Interpret pie charts on this website.	Recap your knowledge on percentage here.	Work out missing angles on this website.	Create line graphs on this website.	Interpret line graphs on this website.
Problem/ activity of the day	(Lesson 1 resources below) **MAKING LINKS:** We learnt about line graphs in Year 5, which can represent data (usually collected in a table). Pie charts are another way to represent the data. **THINK: (support below)** Can you help me with this problem? A pie chart shows children's favourite pizza toppings. What **fraction** chose cheese? Favourite Pizza Toppings **SEE: (model below)** Watch lesson video here. **DO:** Use what you have learnt today to solve: How many children chose mushrooms? How many children chose ham and pepperoni? Watch lesson part 2 here. Then, solve the other problems below.	(Lesson 2 resources below) **MAKING LINKS:** Yesterday we learnt how to interpret pie charts. **THINK: (support below)** Can you help me with this problem? What percentage of the smoothie is lime juice? If the total amount of juice is 250ml, how much pineapple is there? FRUIT JUICE IN SMOOTHIE **SEE: (model below)** SEE video clip: Watch lesson video here. **DO:** Use what you have learnt today to use a different strategy to work out how much orange and lime there is. Then, solve the other problems below.	(Lesson 3 resources below) **MAKING LINKS:** Yesterday we learnt how to interpret pie charts using percentages. **THINK: (support below)** Can you help me with this problem? If the amount spent on food is £65, how much is spent on entertainment? If the amount spent on shopping is £150, how much is spent on hotels? Average Spending on Holiday **SEE: (model below)** SEE video clip: Watch lesson video here. **DO:** Use what you have learnt today to use a different strategy to work out: How much is spent on transport? Then, solve the other problems below.	(Lesson 4 resources below) **MAKING LINKS:** This week, we learnt how to interpret **discrete data** (that can be counted) from pie charts. Today we will interpret **continuous data** (that changes over time) from line graphs, which we learnt about in Year 5, **THINK: (support below)** My friend's app tells him how far and how long he has been walking or running <table><tr><td>Time in mins</td><td>10</td><td>20</td><td>30</td><td>40</td><td>50</td></tr><tr><td>Distance travelled in km</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table> How could these readings be displayed in a line graph? **SEE: (model below)** Watch lesson video here **DO:** Use your line graph to solve the problems below:	(Lesson 5 resources below) **MAKING LINKS:** We learnt about interpreting line graphs yesterday and about converting units of length (centimetres to inches) and mass (kilograms to pounds) in Year 5. This lesson combines both skills. **THINK: (support below)** One friend uses 1 mile ≈ 1.6 km to convert between miles and kilometres Another friend uses this graph to convert Which method is most accurate? **SEE: (model below)** Watch lesson video here **DO:** Use both methods to complete the table below. Decide on the most accurate answer
Time to check	**Day 1 resources and answers (below)**	**Day 2 resources and answers (below)**	**Day 3 resources and answers (below)**	**Day 4 resources and answers (below)**	**Day 5 resources and answers (below)**

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THINK:

Looking at the pie chart below, can you work out: what fraction of people chose cheese? (We know the number that chose cheese, now we need to work out the fraction).

See support video for additional help.

SEE:

Favourite Pizza Toppings

$\frac{1}{3}$

35 people

■ Pepperoni ■ Ham ■ Mushroom ■ Cheese

I can see that 35 people chose cheese, but now I need to convert that to a fraction. 1/3 chose Ham and Pepperoni, and I can see from the right angle that ¼ chose mushroom.

So now, all I need to do is work out what fraction is left!
I will convert 1/3 and ¼ so they have the same denominators: 4/12 and 3/12. Added together, this makes 7/12.

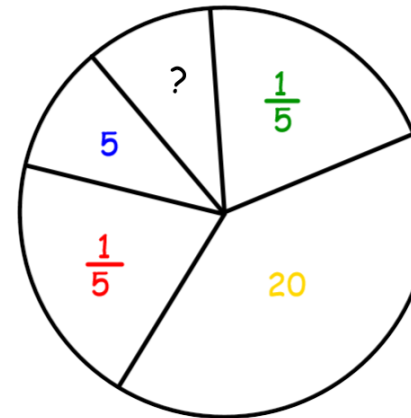I know 1 whole is 12/12 so I can take 7/12 away from 12/12 to get 5/12. This means that 35 people, is the same as 5/12.

Now solve:
How many children chose mushrooms?
How many children chose ham and pepperoni?

TIPS
5/12 = 35 people so 1/12 is 7 people.
¼ (mushrooms) = 3/12

DO:

Favourite Colours

The table below shows the favourite colours of 50 children across the Q1E trust. Use the information on the pie chart to work out the missing information in the table.

Colour	Number	Fraction
Red		1/5 **= 2/10**
Yellow	20	
Green		1/5 **= 2/10**
Blue	5	
Black		
Total	**50**	**10/10**

Support reminder:
If 10/10 (the whole amount) is 50, what would 1/10 be?
Can you use this now work out 2/10?

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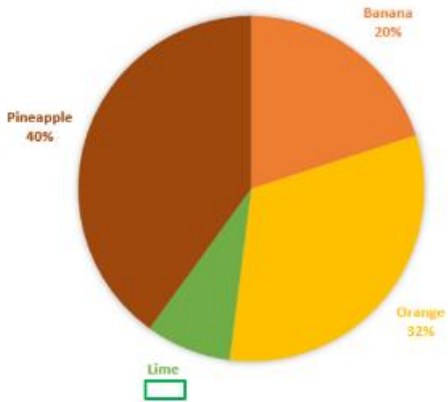
THINK:
Looking at the pie chart below, can you work out what percentage of the smoothie is lime juice? If the total amount of juice is 250ml, how much pineapple is there?

SEE:

FRUIT JUICE IN SMOOTHIE

Banana 20%

Pineapple 40%

Orange 32%

Lime

What percentage of the smoothie is lime juice?
The key information we need to know here is that <u>one whole is the same as 100%</u>. This will help us to solve the problem.

So I know that 20% (the banana) + 32% (the orange) + 40% (the pineapple) + <u>something</u> (the lime) is going to equal 100%.

I added up the three percentages I knew first. 20% + 32% + 40% = 92%. Then I took 100% – 92%= 8%. So I worked out that 8% was lime.

If the total amount of juice is 250ml, how much pineapple is there? For questions like this, it's useful to draw a table with what we know already. I know that 250ml is the whole bottle, which is the same as 100%.

In order to work out the amount of pineapple, I'll work out the banana first. I need to think: how did I get from 100% to 20%?
I worked out that 100 ÷ 5 = 20. If I divide 100 by 5 to get to 20, I can also divide 250 by 5 to work out the number of millilitres.
You can use the same strategy to work out the amount of pineapple: what did I divide 100% by to get 40%?

250 ml = 100% ⟩ ÷ 5
50 ml = 20%
= 40%

DO:

Film choices in Y6

TIP
A + D = 50%
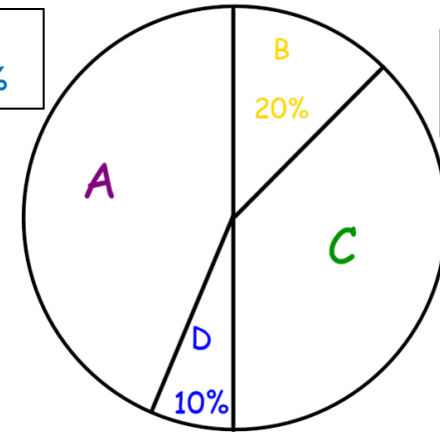
TIP
C + B = 50%

1.) What percentage of children chose film A?

2.) What percentage of children chose film C?

3.) If there were 50 children surveyed in total, how many children chose each film?

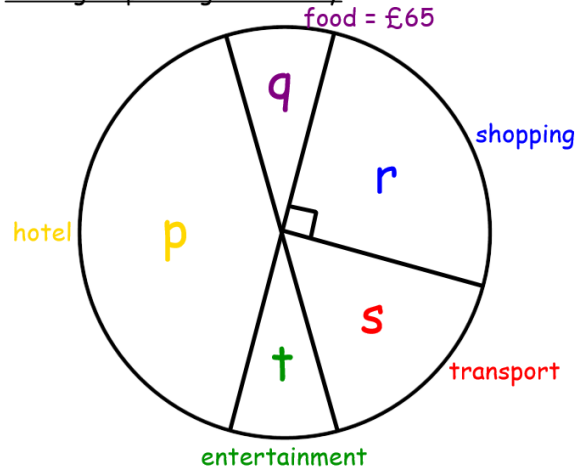| Film	Children	Fraction
A		
B		2/10 = 20%
C		
D		1/10 = 10%
Total	50	10/10 = 100%

THINK:
If the amount spent on food is £65, how much is spent on entertainment?
If the amount spent on shopping is £150, how much is spent on hotels?

SEE:

Average Spending on Holiday

If the amount spent on food is £65, how much is spent on entertainment?
This question is easy to solve if you know one key piece of information: **Angles** that are **opposite** each other when two lines cross, (the two **angles** that share the same corner like q and t) **are equal** (so that means they have the same measurement).
With this information, we can now easily see what amount was spent on Entertainment! That's right- it's £65.

If the amount spent on shopping (r) is £150, how much is spent on hotels?
I know that if I added up "t", entertainment with "p", hotels, it would make exactly half the circle, or 180 degrees. I can also see that the section with "shopping" has got a right angle. That means it's 90 degrees. I can add up two right angles to make a straight line! So this means that two lots of "shopping" would add up to the same amount as "hotel" and "entertainment"! I can write it as an algebraic expression like this: t + p = r x 2 (or 2r) = 180 degrees
Now I can substitute the numbers in for the values I know. t is £65, and r is £150.
Next, I'll multiply the £150 by 2 to get £300 as it says r x 2 (or 2r)
Now I have everything solved except for p, "hotels". I took £65 away from £300 and worked out that p was £235.

DO:

Children's Favourite Trips
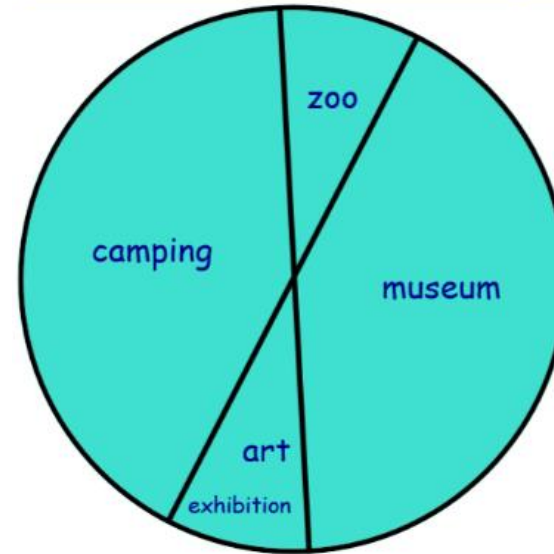
1.) On the above pie chart, which values are the same?

2.) If the total number of children is 48 and "zoo" is 4, can you work out the rest of the values?

Remember
Angles that are **opposite** each other when two lines cross, (the two **angles** that share the same corner) **are equal** (so that means they have the same measurement).

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THINK:

My friend's app tells him how far and how long he has been walking or running

Time in mins	10	20	30	40	50
Distance travelled in km	1	2	3	4	5

How could these readings be displayed in a line graph?

SEE: support video

Step 1:

- Time is shown on x axis (horizontal axis)
- Distance is shown on y axis (vertical axis)
- Use a ruler to make sure units are equal distance apart. It could be 1cm, 2cm, 1 inch or whatever works on your page

Step 2:

Plot the points from the table

Use a ruler to make sure the x and y co-ordinates meet up exactly (like the dotted red lines

Step 3

Step 4

You can extend your line graph to help you work out data not included in the table (if my friend continues walking at the same speed)

DO:

Use your line graph to solve the following problems:

How far did my friend travel in 25 mins?

How far would my friend walk in one hour (60 minutes) at this speed?

How long would it take my friend to travel 100km at this speed?
Remember: My friends walks 5km in 50 minutes
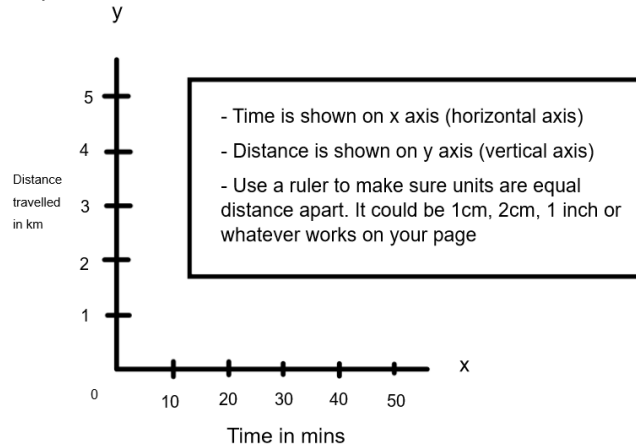
What else can we work out?

Think of 2 questions that are easy for you to answer

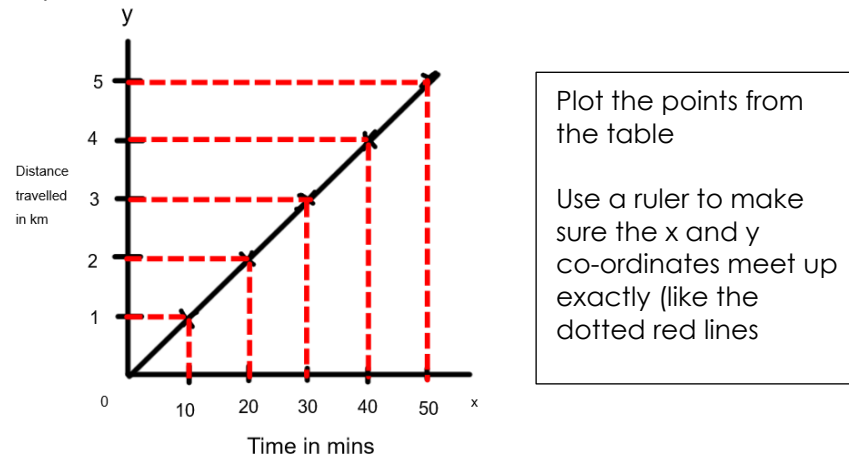Think of 2 questions that are difficult for you to answer

Think of 2 questions that are impossible for you to answer

DAY 5 RESOURCES:
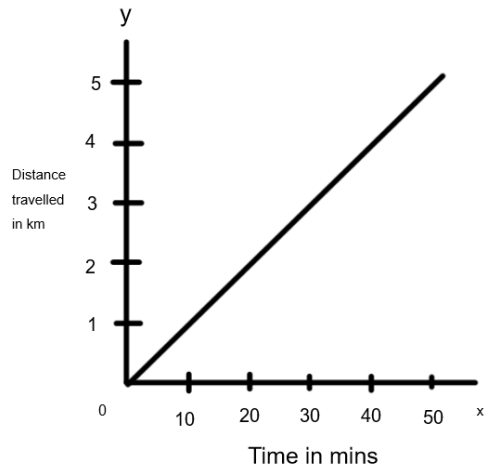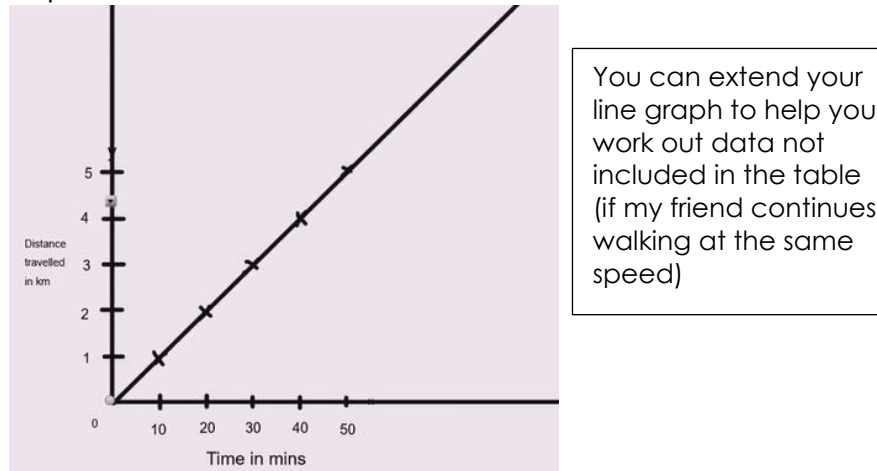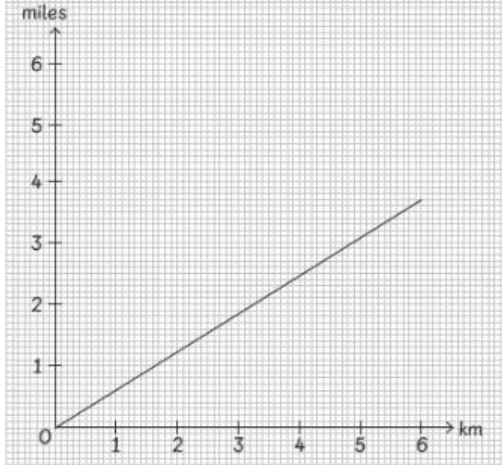
THINK:

Using the graph to convert: use a ruler to find the point when x co-ordinates and y co-ordinates meet the line.

Using **1 mile ≈ 1.6km** to convert: this method involves multiplying by 1.6 to convert miles to km and or dividing by 1.6 to convert km to miles. It is best to use long division to do divide by 1.6

SEE: support video

Using the graph to convert: use a ruler to find the point when x co-ordinates and y co-ordinates meet the line. The diagram below shows that **1 mile ≈ 1.6km and 2.5 ≈ 4km (note that it is difficult to be very accurate using this method)**
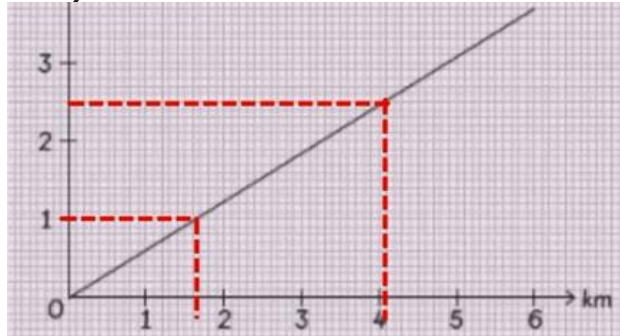
Using **1 mile ≈ 1.6km** to convert: this method involves multiplying by 1.6 to convert miles to km and or dividing by 1.6 to convert km to miles. It is best to use long division to do divide by 1.6

Distance between	In miles	In km
Town A and Town B	1 $\xrightarrow{\times 1.6}$	1.6
Town B and Town C	2.5 $\xrightarrow{\times 1.6}$	4
Town A and Town C	6 $\xrightarrow{\times 1.6}$	
Town C and Town D	$\xleftarrow{\div 1.6}$	4
Town A and Town D	$\xleftarrow{\div 1.6}$	8

DO:

Use both methods to complete the table. Decide on the most accurate answer.

Distance between	In miles	In km
Town A and Town B	1	1.6
Town B and Town C	2.5	
Town A and Town C	6	
Town C and Town D		4
Town A and Town D		8
Town D and Town E	6.5	
Town E and Town B		3
Town E and Town C		5

Reminder: Use the facts that you know.
If we know how much 1 mile is in km, then we can work out 6 miles and we can work out a half a mile (0.5mile).
Also if you know 1.6km is one mile think about the relationship between 1.6km and 8km.
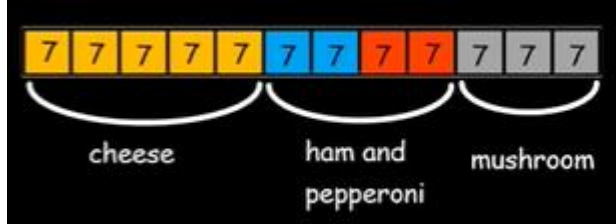
ANSWERS:

Day 1:

SEE:

What fraction chose cheese? 5/12
How many children chose mushrooms? 21
How many children chose ham and pepperoni? 28

DO:

Colour	Number	Fraction
Red	10	1/5
Yellow	20	2/5
Green	10	1/5
Blue	5	1/10
Black	5	1/10

Day 2:

SEE:

What percentage of the smoothie is lime juice? 8%

If the total amount of juice is 250ml, how much pineapple is there? 100ml
How much orange juice is there? 80ml.
How much lime juice is there? 20ml.

DO:

1.) What percentage of children chose film A? 40%

2.) What percentage of children chose film C? 30%

3.) If there were 50 children surveyed in total, how many children chose each film?
Film A = 40%. 40% of 50 = 20 children
Film B = 20%. 20% of 50 = 10 children
Film C = 30%. 30% of 50 = 15 children
Film D = 10%. 10% of 50 = 5 children

ANSWERS:

Day 3:

SEE:

If the amount spent on food is £65, how much is spent on entertainment? £65

If the amount spent on shopping is £150, how much is spent on hotels? £235

How much money was spent on transport? £85

$$p + t = q + r + s$$
$$£235 + £65 = £65 + £150 + S$$

DO:

1.) On the above pie chart, which values are the same? Zoo and Art are the same, and Camping and Museum are the same.

2.) If the total number of children is 48 and "zoo" is 4, can you work out the rest of the values?

Zoo: 4

Art: 4

48 – 4- 4 = 40 (so Camping + museum together are 40).

40 ÷2 = 20

Camping: 20

Museum: 20

Day 4:

DO:

How far did my friend travel in 25 mins? 2.5km or 2500m

How far would my friend walk in one hour at this speed? 6km (he is travelling at a speed of 6km per hour)

How long would it take my friend to travel 100km at this speed? 1000 minutes or 16 hours and 40 minutes

What else can we work out?
Answers will vary

Day 5:

DO:

Distance between	In miles	In km
Town A and Town B	1	1.6
Town B and Town C	2.5	4
Town A and Town C	6	9.6
Town C and Town D	2.5	4
Town A and Town D	5	8
Town D and Town E	6.5	10.4
Town E and Town B	1.875	3
Town E and Town C	3.125	5