Year 6 Maths Home Learning | Summer Term

W.C. 15th June

Maths Answers

Monday

Fluent in 5

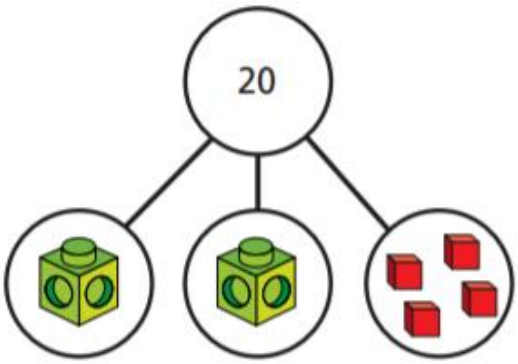
Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. 57,694 + 67,896 = **125,590** (W)
2. $1\frac{1}{3} + 2\frac{1}{3} = \mathbf{3\frac{2}{3}}$ (M)
3. 3.21 x 3 = **9.63** (M)
4. 679,329 – 34,672 = **644,657** (W)
5. 3^2 = **9** (M)

Mild

Forming and solving two step equations

1 Here is a part-whole model.

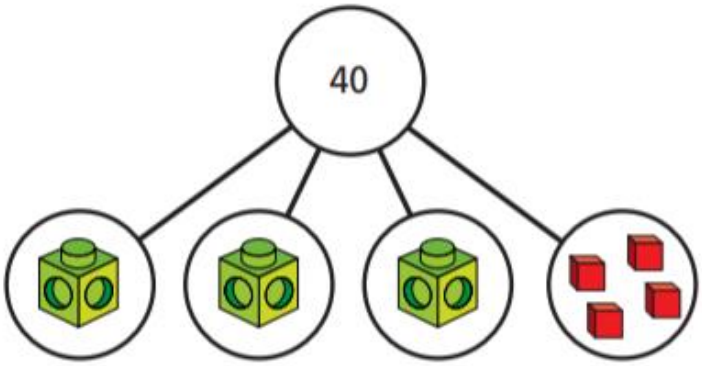


a) Write an equation for the part-whole model.

$2a + 4 = 20$

b) Solve the equation to work out the value of 

2 If each multilink cube represents x, form and solve an equation to find the value x.



$x =$ 12

Calculate the value of a

6, 11, 3

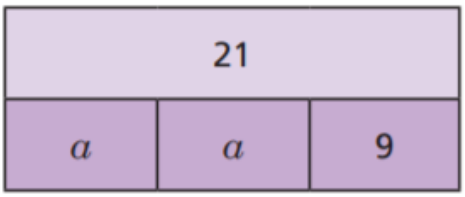
10, 14, 7

Medium

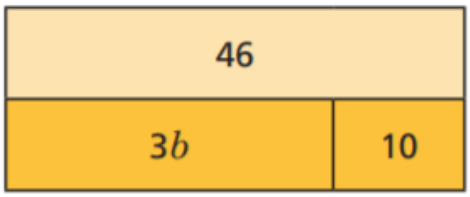
Write an algebraic equation to represent each bar model.

Find the values of a and b.

a)



b)



$a =$ 6

$b =$ 12

Solve the equations.

a) $5x + 1 = 31$

$x =$ 6

b) $3x - 3 = 9$

$x =$ 4

c) $4p - 11 = 3$

$p =$ 3·5

d) $9 = 2y + 8$

$y =$ 0·5

e) $10g - 2 = 46$

$g =$ 4·8

f) $4 + 3y = 28$

$y =$ 8

1. I start with a number.
I multiply it by 7.
I add 5.
I end with the number 54.
What number did I start with? **7**

2. I start with a number.
I multiply it by 8.
I add 6.
I end with the number 86.
What number did I start with? **10**

3. I start with a number.
I multiply it by 6.
I add 9.
I end with the number 57.
What number did I start with? **8**

Spicy

A – n = 2	B – x = 7	C – n = 4	D - c = 2
E - y = 2	F – t = 3	G – n = 5	H – x = 6
I – n = 5	J – x = 9	K – b = 7	L – a = -1

I start with a number.
I divide it by 11.
I add 18.
I end with the number 25.
What number did I start with? **77**

I start with a number.
I subtract 20.
I multiply it by 10.
I end with the number 300.
What number did I start with? **50**

I start with a number.
I subtract 35.
I multiply it by 3.
I end with the number 135.
What number did I start with? **80**

Dani thinks of a number.

She doubles it and adds 3

She gets the answer 15

a) Write an equation to represent Dani's problem.

$2x + 3 = 15$

b) Solve the equation to find her number.

6

Alex is y years old.

Her friend Brett is 3 years older.

The total of their ages is 25

How old are Alex and Brett?

Alex is 11 Brett is 14

a) Work out the cost of one banana and one orange.

One banana costs 32p One orange costs 28p

Tuesday

Fluent in 5

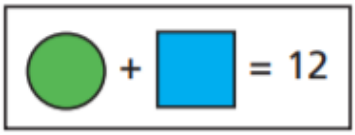
Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. 347 x 6 = **2,082** (W)
2. 9,832 + 124,866 = **134,698** (W)
3. $6\frac{1}{3} + 1\frac{2}{3} =$ **8** (M)
4. 3.43 x 3 = **10.29** (M)
5. $\frac{2}{5} \times 3 =$ **$\frac{6}{5}$** *or* **$1\frac{1}{5}$** (M)

Using substitution to find possible values of a pair of variables

Mild

1 **a)** Here is an equation.



Find six possible pairs of values for the circle and square.

e.g.

●	1	2	3	4	5	6
■	11	10	9	8	7	6

b) Here is another equation.

$$x + y = 12$$

Find six possible pairs of values for x and y.

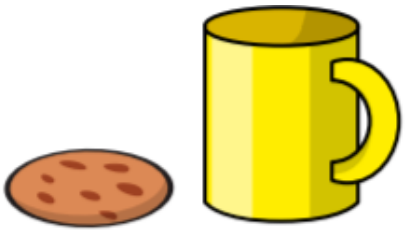
e.g.

x	1	2	3	4	5	6
y	11	10	9	8	7	6

c) What is the same and what is different about part a) and part b)?

Answers are the same, representations are different.

2 Kim buys these two items from a cafe.



The total cost is 90p.

a) What could the cost of each item be?

e.g.

	10p	20p	30p	40p	50p	60p
	80p	70p	60p	50p	40p	30p

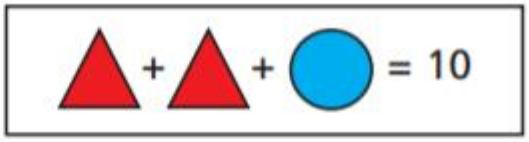
A coffee could cost 90p.

Is this possible? No

Explain your answer.

The cookie wouldn't cost anything.

Class 6 are trying to solve a number puzzle.



a)

The triangle could be 3 and the circle could be 4

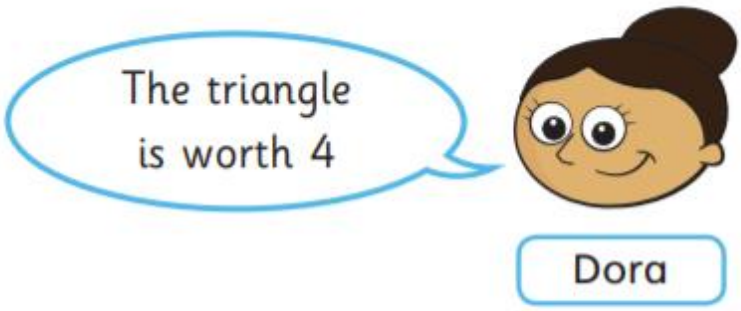
Dexter

Do you agree with Dexter? Yes

Explain why.

3 + 3 + 4 = 10

b)



What is the value of the circle in Dora's number puzzle?

● = 2

c) Find other pairs of values that the triangle and circle could equal.

Find three pairs.

▲ = 1 ● = 8

▲ = 5 ● = 0

▲ = 2 ● = 6

a and b are whole numbers.

$$2a + b = 14$$

Complete the table to show different possible values for a and b.

a	0	1	2	3	4	5	6	7
$2a$	0	2	4	6	8	10	12	14
b	14	12	10	8	6	4	2	0
$a + b$	14	14	14	14	14	14	14	14

Medium

a and b are whole numbers.

$$a + b = 8$$

Complete the table to show different possible values for a and b.

a	0	1	2	3	4	5	6	7
b	8	7	6	5	4	3	2	1
$a + b$	8	8	8	8	8	8	8	8

c and d are both numbers less than 20

$$c - d = 4$$

Complete the table to show possible values for c and d.

c	19	18	17	16	15	14	13	12
d	15	14	13	12	11	10	9	8
$c - d$	4	4	4	4	4	4	4	4

a and b are whole numbers.

$$2a + b = 14$$

Complete the table to show different possible values for a and b.

a	0	1	2	3	4	5	6	7
$2a$	0	2	4	6	8	10	12	14
b	14	12	10	8	6	4	2	0
$a + b$	14	14	14	14	14	14	14	14

c and d are both integers less than 15 but greater than zero.

$$3c - d = 2$$

Complete the table to show different possible values for c and d.

c	1	2	3	4	5
$3c$	3	6	9	12	15
d	1	4	7	10	13
$3c - d$	2	2	2	2	2

b) Explain why there are no other possible values for c and d.

If c was 16 d would be greater than 15

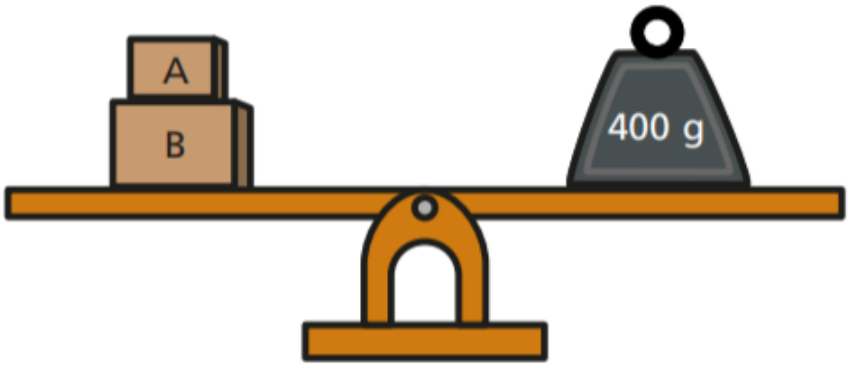
Spicy

a and b are integers.

$$ab = 24$$

List all the possible values for a and b.

a	1	2	3	4	6	8	12	24
b	24	12	8	6	4	3	2	1



What could the masses of the boxes be?

e.g. A = 100g B = 300g

List all the possible values of x, y and z.

x	9	8	7	6	7	6	5
y	2	3	4	5	3	4	4
z	1	1	1	1	2	2	3

x and y are both multiples of 5 less than 100

If $2x = y$, circle the possible values of x and y.

$x = 20, y = 20$

$x = 10, y = 20$ ✓

$x = 20, y = 10$

$x = 35, y = 70$ ✓

$y = 90, x = 45$ ✓

Aisha is buying some stationery for school.

She spends exactly £1

List the possible combinations of pencils and pens that Aisha could have bought.

10 pencils

6 pens & 1 pencil

2 pens & 7 pencils

4 pens & 4 pencils

Ron has four digit cards.

- Two of the cards have the same value.
- All of the cards are less than 10 but greater than zero.
- All of the cards are odd.
- The sum of the four cards is 24

Find two possible sets of cards.

Set 1 1 5 9 9

Set 2 1 7 7 9

Wednesday

Fluent in 5

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $34 \times 21 = \mathbf{714}$ (W)
2. $784 \div 9 = \mathbf{87\frac{1}{9}}$ *or* **87 r 1** (W)
3. $3\frac{1}{4} + 1\frac{1}{4} = \mathbf{4\frac{2}{4}}$ *or* $\mathbf{4\frac{1}{2}}$ (M)
4. $\frac{1}{3}$ of **63** = 21 (M)
5. $9^2 = \mathbf{81}$ (M)

Converting metric measures

Mild

1. How many centimetre cubes can you fit along a metre stick?

100

2 Complete the sentences.

a) There are [1,000] grams in 1 kilogram.

There are [1,000] kilograms in one tonne.

b) There are [1,000] millilitres in 1 litre.

c) There are [10] millimetres in 1 centimetre

There are [100] centimetres in 1 metre.

There are [1,000] metres in 1 kilometre.

3 Complete the bar models.

a)

1 km	1 km	1 km	1 km
1,000 m	1,000 m	1,000m	1,000m

There are [4,000] m in 4 km.

b)

1 kg	1 kg	1 kg	1 kg	1 kg	1 kg	$\frac{1}{2}$ kg
1,000 g	1,000 g	1,000 g	1,000g	1,000g	1,000g	500g

There are [6,500] g in $6\frac{1}{2}$ kg.

4) 1.5cm; 150mm; 100cm, 1.5m

5) 9.5kg; 9,000g; 325g; 95g

6) a: 150cm = 1.5m; d: 1L = 1,000ml

7) a: 500g = 0.5kg; b: 2,200ml = 2.2L

Medium

Complete the conversions.

a) 2 kg = 2,000 g

5 kg = 5,000 g

10 kg = 10,000 g

12kg = 12,000 g

b) 1 l = 1,000 ml

5 l = 5,000 ml

11 l = 11,000 ml

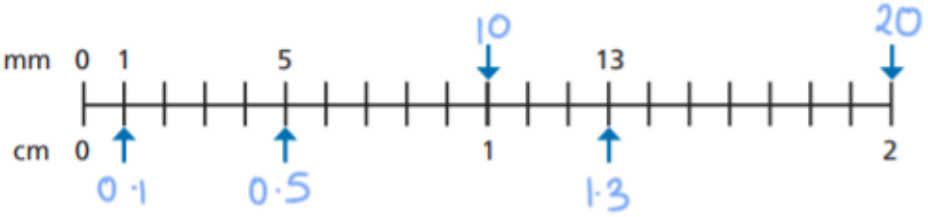
A bag of dog food weighs 2.5 kg.

Write this weight in grams.

2,500g

What measurements are the arrows pointing to?

Label them on the number line.



1.455mm; 1m; 1.5m; 1,605mm; 175cm; 250cm

1.25kg; 1,005g; 1kg; 500g; 0.25kg; 125g

a: 1,550m = 1.55km; c: 75cm = 750mm

c: 1.35kg = 1,350g; d: 2,055g = 2.055kg

Joey is correct because to convert cm to m, you need to divide by 100. 34,525 ÷ 100 = 345.25

Aelin is correct because to convert L to ml, you need to multiply by 1,000. 3.657 x 1,000 = 3,657

Spicy

Complete the conversions.

a) 10 mm = [1] cm

[11] mm = 1.1 cm

11 mm = [1·1] cm

[101] mm = 10.1 cm

[110] mm = 11 cm

b) 2.1 km = [2,100] m

2.01 km = [2,010] m

2.001 km = [2,001] m

2.011 km = [2,011] m

Write > , < or = to complete the statements.

a) 100 m [<] 1 km

10 m [>] 10 cm

10.1 mm [<] 101 cm

b) 5.1 l [=] 5,100 ml

607 l [>] 0.607 ml

0.05 l [>] 5 ml

0.73mm; 0.63cm; 0.008m; 81.08cm; 2.08m; 8,003mm

0.203L; 0.045L; 0.024L; 0.001L; 0.206ml; 0.056ml

Dora and Amir are trying to convert 1.05 metres into millimetres.

You can multiply 1.05 by 100 to convert it into centimetres, then multiply the product by 10 to convert it into millimetres.

Dora

Amir

You can just multiply 1.05 by 1,000!

Who do you agree with? Both

What is the mass of one of the boxes?

Give your answer in grams.

250g

Hannah is incorrect because her garden received 13.804L of water in Week 1, which is more than any other week.

Rudie is correct because to convert m to mm, you need to multiply by 1,000. 112.008 x 1,000 = 112,008

Thursday

Fluent in 5

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. 879 x 9 = **7,911** (W)
2. **4.35** ÷ 3 = 1.45 (M)
3. $\frac{3}{5} \times 2 = \frac{\mathbf{6}}{\mathbf{5}}$ *or* $\mathbf{1}\frac{\mathbf{1}}{\mathbf{5}}$ (M)
4. $12^2 = \mathbf{144}$ (M)
5. 896,932 – 1,859 = **895,073** (W)

Convert between miles and kilometres

Mild

1 Tick the statements that are true.

Use the bar model to help you.

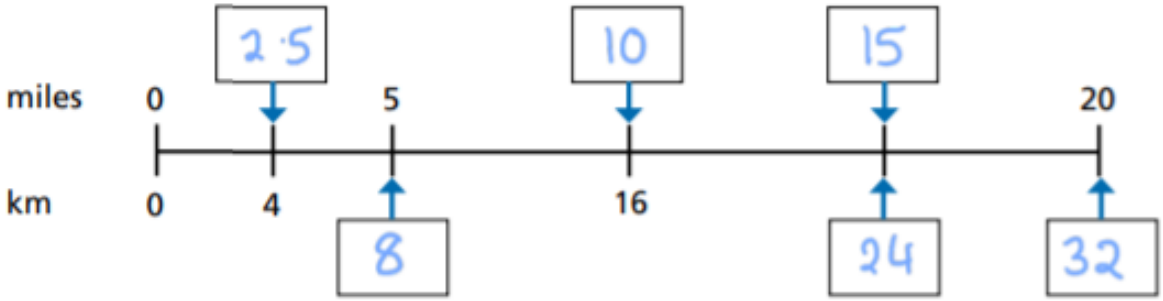
a) 5 miles is approximately equal to 8 kilometres. ☑

b) 1 mile is longer than 1 kilometre. ☑

c) 2 kilometres is longer than 1 mile. ☑

d) 2 kilometres is longer than 2 miles. ☐

2 Fill in the missing numbers on the number line.



Calculate the missing conversions.

15 miles, 16km, 20 miles

50 miles, 72km, 25 miles

True or false?

False, 16 km is equivalent to 10 miles

False, 40 miles is equivalent to 64 km

56km

120km

Medium

Complete the conversions.

a) 5 miles ≈ 8 kilometres

10 miles ≈ 16 kilometres

15 miles ≈ 24 kilometres

b) 10 miles ≈ 16 kilometres

1 mile ≈ 1.6 kilometres

0.5 miles ≈ 0.8 kilometres

Complete the conversions.

a) 100 miles ≈ 160 km

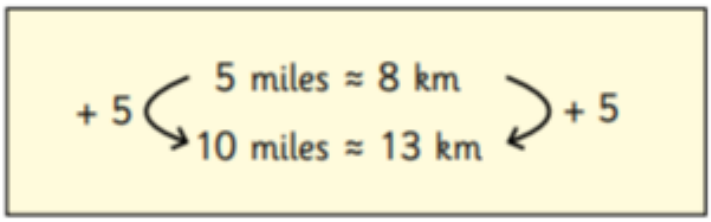
b) 45 miles ≈ 72 km

c) 400 ≈ 640 km

d) 95 miles ≈ 152 km

e) 7.5 miles ≈ 12 km

f) 2 miles ≈ 3·2 km



Whitney added 5 to each side. She should have doubled each side so 5x2 = 10 miles and 8 x 2 = 16km.

10 miles = 16km approximately

False. 25 miles ≈ 40km

False. 1.5 miles ≈ 2.4km

Sam

They ran the same distance.

15.2km

29.6km

Spicy

2.5 miles ≈ 4km, 5 miles ≈ 8km, 1.5 miles ≈ 2.4km, 4.5 miles ≈ 7.2km

A marathon is approximately 26.2 miles.

How far is this in kilometres?

41·92km

a) Which country has the higher speed limit for these roads?

France

b) What is the difference between the speed limits in miles per hour?

1·25mph

Esther cycles 60 miles over 4 days.

On day 1 she cycles 14 miles.

On day 2 she cycles 32 km.

On day 4 she cycles twice as far as she does on day 3

How far does she cycle on day 4?

Give units with your answer.

16 miles

How far is eachjourney in kilometres?

26km

46.4km

Use a map of your local area. Various answers.

Find something that is approximately:

a) 1 mile away from your school

_____

b) 1 km away from your school

_____

c) 5 miles away from your school

_____

d) 5 km away from your school

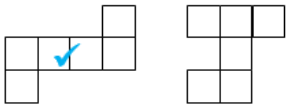
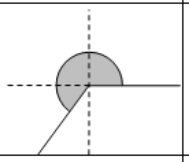
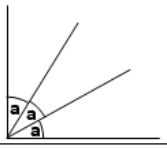
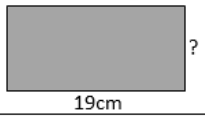
_____

Friday

Challenge of the Week

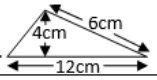
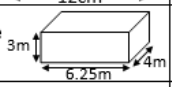
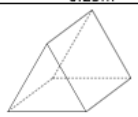
Key Skills

Mild

A: Place Value, Add and Subtract		B: Multiply, Divide and Fractions		C: Geometry and Problem Solving	
1. Write **<** or **>** to make this correct: 850,200 ☐ 805,200	5:1 **>**	11. Circle all the **multiples** of 7. 12 (21) 30 (35)	5:8 **21, 35**	21. Which of these three numbers is the **largest**? **a.** 0.67 **b.** 0.534 **c.** 0.6	5:18 **a**
2. Write 1,600,850 in words.	5:1 **One million, six hundred thousand, eight hundred and fifty**	12. The number 45 has two **prime factors**. What are they?	5:9 **3, 5**		
3. Round 596,147 to the **nearest hundred.**	5:2 **596,100**	13. 3,464 x 4	5:10 **13,856**	22. Tick (✓) the net of a cube. 	5:24 **Left net ticked**
4. What is the missing number? 235,875 236,875 ☐ 238,875	5:2 **237,875**	14. 1.09 x 1000	5:11 **1,090**		
5. Find the difference in temperatures. London -9°C Glasgow 11°C	5:3 **20°C**	15. Complete the sequence of **square numbers**. 1 4 9 16 ☐	5:12 **25**	23. **Estimate** the size of this angle: 	5:25 **225° - 245°**
6. Write this number in Roman Numerals: 1,504	5:4 **MDIV**	16. Write **<**, **=** or **>** to make this correct: $\frac{3}{4}$ ☐ $\frac{10}{12}$	5:13 **<**		
7. 1,035,230 - 302,015 =	5:5 **733,215**	17. Find an **equivalent fraction** of $\frac{2}{10}$. 	5:14 $\frac{1}{5}$	24. Calculate the missing angle labelled **a**: 	5:26 **30°**
8. 27,495 + 8,420 =	5:5 **35,915**	18. Write $5\frac{5}{8}$ as an **improper fraction.**	5:15 $\frac{45}{8}$		
9. Complete this sum without written working. 15,600 + 7,400 =	5:6 **23,000**	19. $3\frac{4}{5} \times 2 =$	5:16 $7\frac{3}{5}$	25. The perimeter of this rectangle is 50cm. How long is the missing side?  ? 19cm	5:27 **6cm**
10. A train has 1,200 seats. 457 seats are empty. How many are on board?	5:7 **743**	20. Round 7.51 to the nearest whole number.	5:17 **8**		
Total (A)		Total (B)		Total (C)	
Test Total (A+B+C)		R (0-9)	Y (10-19)	G (20-25)	

Key Skills

Medium and Spicy

A: Place Value, Add, Subtract, Multiply and Divide		B: Fractions, Ratio, Proportion and Algebra		C: Measure, Geometry and Statistics	
1. Write **nine million, seventy four thousand, two hundred** in digits.	6:1 **9,074,200**	11. Which is the **smallest** fraction? $\frac{4}{5}$. $\frac{10}{15}$ or $\frac{38}{45}$	6:7 **$\frac{10}{15}$**	21. Calculate the **area** of this **triangle**. 	6:21 **24cm²**
2. What is the value of the **3** in this number? 5,273,914	6:1 **3,000**	12. $\frac{13}{15}$ - $\frac{4}{9}$ =	6:8 **$\frac{19}{45}$**	22. Find the **volume** of this **cuboid**. 	6:22 **75m³**
3. Round 8.427 to 1 decimal place.	6:1 **8.4**	13. Simplify your answer. $\frac{5}{13}$ x $\frac{3}{5}$ =	6:9 **$\frac{3}{13}$**	23. Complete the information for this shape:  Faces = 5 Edges = 9 Vertices = 6	6:23 **Faces:5 Edges:9 Vertices: 6**
4. Write the largest possible length. Length: 3.8cm (to 1 decimal place)	6:2 **3.85**	14. 46.3 ÷ 100	6:10 **0.463**		
5. 6,423 x 26	6:3 **166,998**	15. 8.42 x 7	6:11 **58.94**	24. 63 teachers were asked what newspaper they read. The results are shown in this Pie Chart.  How many teachers read the Daily Reporter?	6:29 **21**
6. Give the answer as a **mixed number**: 1,215 ÷ 18	6:3 **67 $\frac{1}{2}$**	16. Write this fraction as a **decimal** and a **percentage**. ($\frac{3}{10}$)	6:12 **0.3, 30%**		
7. Which is a **common multiple** of 14 and 21? 42 28 21 7 3	6:4 **42**	17. Find **85%** of 180.	6:13 **153**		
8. Circle **all** the **prime numbers**: (41) (43) 45 49	6:4 **41, 43**	18. Share £45 in the ratio 7:2.	6:14 **£35:£10**		
9. (25 - 12) + 8	6:5 **21**	19. How much will a 9 mile trip cost? Taxi charge: £5 + 20p per mile.	6:15 **£6.80**		
10. Give two numbers that have a difference of 2 and add to make -6.	6:6 **-4, -2**	20. The rule for this sequence is multiply by 2 then add 4: 2, 8, 20, ☐	6:16 **44**	25. Find the mean of these numbers: 2 6 5 7 8 3 4	6:30 **5**
Total (A)		Total (B)		Total (C)	
Test Total (A+B+C)		R (0-9)	Y (10-19)	G (20-25)	