Name	
Form	
Teacher	

Maths
Homework Booklet

Year 8e Autumn

Topic	Hand in date	Score achieved
Ratio and scale		
Multiplicative change		
Multiply and divide fractions		
The Cartesian plane		
Representing data		
Tables and Probability		
Mixed A		
Mixed B		
Mixed C		
Mixed D		
Mixed E		
Mixed F		

Year 8
Ratio and Scale

Name _____

1

☆ ☆ ◯ ☆ ☆ ◯
☆ ☆ ◯ ☆ ☆ ◯

Are the statements true or false?
Tick your answer.

	True	False
For every 4 stars, there are 2 circles		
The ratio of circles to stars is 2 : 1		
There are twice as many stars as circles		
$\frac{1}{3}$ of the shapes are circles		

3 marks

2 Write each ratio in its simplest form.

6 : 9

_____

16 : 36

_____

2 marks

3 Tick the diagram that represents the ratio 1 : 4

☐   1 mark

4 Amina and Sara have £320 between them.
They share the money in the ratio 5 : 3

How much money does Amina receive?

£ _____   2 marks

5 Tick the ratios that are equivalent.

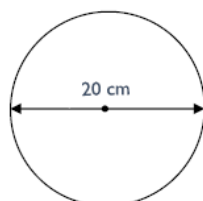2 : 5   5 : 2   6 : 15

12 : 15 $2x : 5x$

2 marks

6 Jack is paid £1800 a month.
He spends half his money on rent.
He spends the rest on food, bills and savings in
the ratio 4 : 3 : 2

How much does he spend on bills?

£ _____   3 marks

7 Calculate the circumference of the circle.
Use $\pi = 3.14$

20 cm

_____ cm   2 marks

8 The ratio of boys to girls in a group is 5 : 3
There are 80 more boys than girls.
Work out how many girls are there?

_____   2 marks

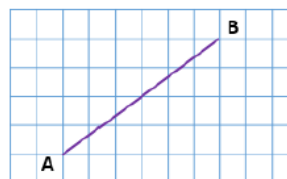**9** **H** Write the ratio in the form 1 : n

4 : 5

_____   1 mark

10 **H** Find the gradient of the line segment AB

B

A

_____   2 marks

Total marks ☐

Year 8
Multiplicative Change

White Rose Maths

Name _____

1 Five cups of coffee cost £4.00
How much do 20 cups of coffee cost?

_____ [ ] 1 mark

How much do 3 cups of coffee cost?

_____ [ ] 2 marks

2 Here is a recipe for pancakes.

> **Pancakes**
> (makes 8)
> 2 eggs
> 280 g flour
> 60 g sugar
> 260 ml milk

Amy wants to make 12 pancakes.
Work out how much of each ingredient he needs.

_____ eggs
_____ flour
_____ sugar
_____ milk [ ] 3 marks

3 This is a conversion graph to change between miles and kilometres.
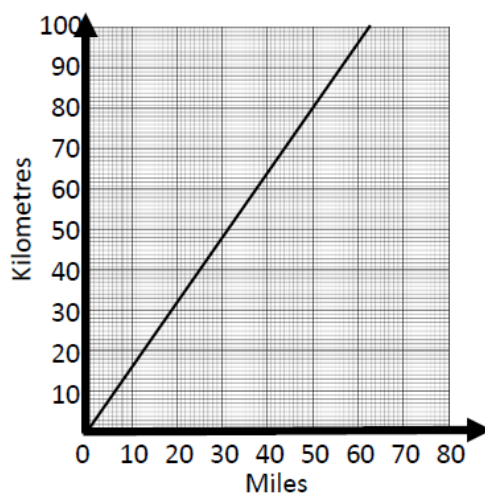
Convert 50 miles into kilometres.

_____ km [ ] 1 mark

Eva says you can use the conversion for 60 km into miles to convert 600 km into miles. Use Eva's method to convert 600 km into miles.
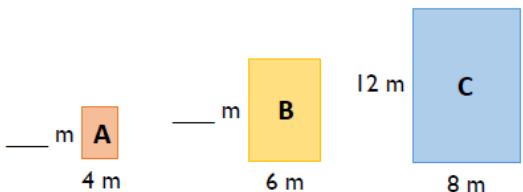
_____ miles [ ] 2 marks

4 James is travelling to South Korea.
The conversion from pounds to South Korean won is £1 = ₩1500
He buys a train ticket for ₩30 000

How much does James pay in pounds?

£ _____ [ ] 2 marks

5 Rectangles A, B and C are similar.
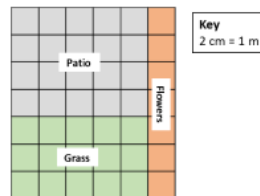Work out the missing lengths.

___ m A   4 m
___ m B   6 m
12 m C   8 m

Write down the scale factor of enlargement for rectangle C to rectangle A.

_____ [ ] 1 mark

[ ] 2 marks

6 Charlotte draws a scale diagram of her garden on centimetre squared paper.

Key
2 cm = 1 m

Patio / Flowers / Grass

What is the perimeter of the actual garden?

_____ m [ ] 2 marks

What is the area of the actual patio?

_____ m² [ ] 2 marks

7 **H** The scale on a map is 1 : 50 000
The distance of the library to the cinema on the map is 2.5 cm. What is the actual distance from the library to the cinema?

_____ km

The actual distance of a school from a park is 0.5 km. What is the distance from the school to the park on the map?

_____ cm [ ] 2 marks

Total marks [ ]
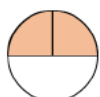
Year 8
Multiply & Divide Fractions

Name _____

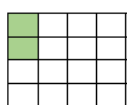**1** Match each representation to the correct calculation.

$\frac{1}{4} \times 2$

$\frac{1}{4} \times \frac{1}{2}$

$4 \times \frac{1}{2}$

2 marks

2 Complete the calculations.

$2 \times \frac{1}{3} =$ $\qquad$ $\frac{2}{7} \times 4 =$

$\frac{4}{5} \times \frac{10}{11} =$

3 marks

3 Complete the calculations.

$\frac{3}{5} \div 3 =$ $\qquad$ $\frac{4}{9} \div \frac{1}{9} =$

$\frac{8}{3} \div \frac{2}{3} =$

3 marks

4 Jamil is working out $\frac{1}{2}$ of $\frac{6}{11}$

For each pair of sentences tick the one that is true.

a) The answer is the same as $\frac{1}{2} \times \frac{6}{11}$

The answer is the same as $\frac{6}{11} \times 2$

b) The answer will be bigger than $\frac{6}{11}$

The answer will be smaller than $\frac{6}{11}$

c) The answer is the same as $\frac{6}{11} \div 2$

The answer is the same as $2 \div \frac{6}{11}$

3 marks

5 Complete the statements using >, < or =

$\frac{3}{7} + \frac{3}{7}$ ◯ $3 \times \frac{2}{7}$

$4 \times \frac{3}{5}$ ◯ $\frac{12}{20}$

$\frac{2}{3} \times \frac{6}{7}$ ◯ $\frac{3}{2} \times \frac{6}{7}$

3 marks

6 Match the equivalent calculations.

$\frac{3}{4} \div 3$

$\frac{3}{4} \div 0.3$

$\frac{3}{10} \div \frac{3}{4}$

$0.3 \div 0.75$

$\frac{3}{4} \times \frac{1}{3}$

$\frac{3}{4} \times \frac{10}{3}$

3 marks

7 Work out the area of the rectangle.

H

$5\frac{2}{3}$ m

$2\frac{3}{4}$ m
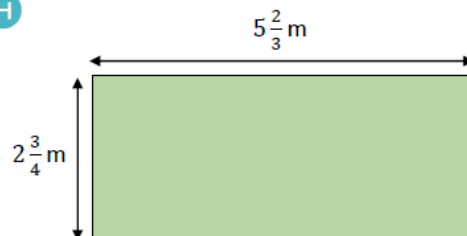
Write your answer as a mixed number and in its simplest form.

_____ m²

3 marks

Total marks ☐

Name _____

1 Plot these points on the grid.

A (0, 2)   B (-3, 2)   C (3, -2)
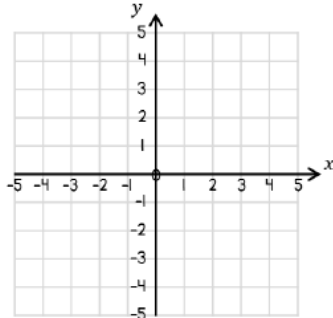
2 marks

Write down the coordinates of the point that is in the 4th quadrant.

_____

1 mark

The coordinate pairs (0, 2) and (-3, 2) lie on the same horizontal line.

Write the equation of the line. _____

1 mark

Draw the line $x = -1$ on the grid.

1 mark

4
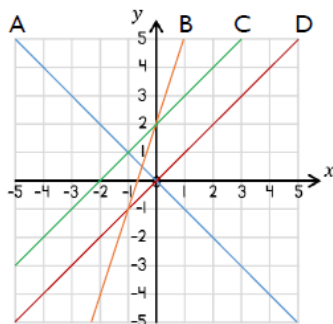
Match the lines A, B, C and D to the correct equation.

A $y = x$

B $y = -x$

C $y = x + 2$

D $y = 3x + 2$

2 marks

Which two of the lines are parallel?

_____ and _____

1 mark

Circle the point that does not lie on the line $y = x$

(4, 4)   (-3, -3)   (7, 7.2) $(\frac{1}{2}, \frac{1}{2})$

1 mark

2 Complete the table of values for $y = 2x + 3$

x	-2	-1	0	1	2
y		1			7

2 marks

On the grid, draw the graph of $y = 2x + 3$ for values of x from -2 to 2
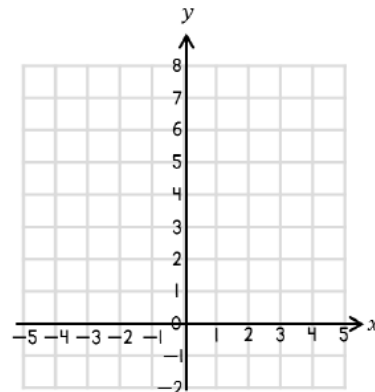
2 marks

3 Which of the following lines is parallel to the x-axis? Circle your answer.

$y = 7$ $y = 7x + 2$ $y = 7x$ $x = 7$

1 mark

Write the equation of a line that is parallel to the y-axis.

_____

1 mark

5 Which of the lines is the steepest? Circle your answer.

$y = 2x + 1$ $y = -2x + 3$

$y = 5 + \frac{1}{2}x$ $y = \frac{1}{2} + 4x$

1 mark

H Write down the equation of a straight line that has a gradient of 12

_____

1 mark

6 **H** Find the midpoint of the line segment joining (3, 2) and (6, 10)

_____

2 marks

7 **H** Which of the graphs are non-linear? Circle your answers.

$y = \frac{x}{2} + 4$ $y = x^2 + 4$ $10x = 5 - y$

$4x^3 - 2 = y$ $y + x = 25$

1 mark

Total marks ☐

Name _____

1 Match the type of data with the data sets.

Discrete   Type of pet

Continuous   Number of pets

Qualitative   Weight of pet

2 marks

2 Here are the number of goals scored by the English netball team in the Netball World Cup.

64, 70, 90, 56, 72, 58, 55, 58

Complete the table to show this data.

Number of goals	Frequency
50 – 59	
60 – 69	
70 – 79	
80+	

2 marks

5 The table shows the scores 8 people got on two quizzes.

Quiz 1	4	7	5	5	7	8	6	9
Quiz 2	6	7	8	19	8	10	9	12

The first 5 points have been plotted on the graph. Plot the last 3 points.
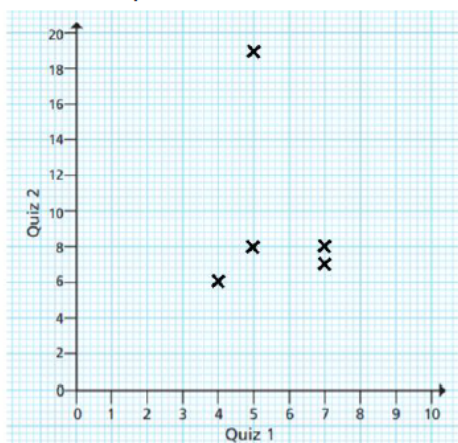
Circle the point that is an outlier.

1 mark

Draw a line of best fit.

1 mark

Estimate the score for quiz 2 for someone who scored 10 on quiz 1

_____

2 marks

3 Describe the correlation shown in the graph.
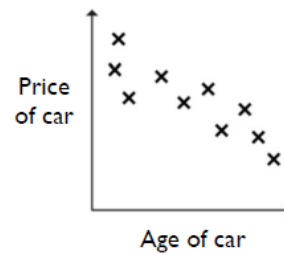
_____ correlation

1 mark

4 The table shows the heights of 27 students.

Height (x cm)	Frequency
$135 < x \leq 140$	1
$140 < x \leq 145$	3
$145 < x \leq 150$	14
$150 < x \leq 155$	8
$155 < x \leq 160$	1

How many students are between 150 and 155 cm tall?

_____

1 mark

How many students are taller than 145 cm?

_____

1 mark

6 200 students study either Geography or History.

There are 93 boys in total.
120 students study Geography.
54 of the Geography students are girls.

Complete the table.

	Geography	History	Total
Boys			
Girls			
Total			

3 marks

7 The table shows the number of TVs owned by 30 people.

Number of TVs	0	1	2	3	4
Frequency	2	5	12	8	3

How many people have one TV?

_____

1 mark

How many people have at least two TVs?

_____

1 mark

How many TVs do the 30 people have altogether?

_____

2 marks

Total marks [ ]

Year 8
Tables and Probability

White Rose Maths

Name _____

1 There are 5 red counters, 2 yellow counters and 3 green counters in a jar.

Tommy takes a counter at random from the jar.

a) What is the probability that he takes a yellow counter?

_____

1 mark

b) What is the probability that he takes a blue counter?

_____

1 mark

2 A sandwich shop offers the following options.

Bread	Filling 1	Filling 2
White	Egg	Salad
or	or	or
Brown	Ham	coleslaw

Continue this list of all the possible combinations of sandwich:
White, Egg, Salad, _____

_____

_____

2 marks

3 300 students pick either menu 1 or menu 2 for their lunch.
The table shows the choices.
Complete the table.

	Year 7	Year 8	Total
Menu 1	28		
Menu 2		138	240
Total	130		300

2 marks

a) What is the probability that a student chooses menu 1?

_____

1 mark

b) What is the probability a year 8 student chooses menu 2?

_____

1 mark

4 List the possible outcomes when rolling a six-sided dice.

$$S = \{ \qquad\qquad\qquad \}$$

1 mark

Jack says the probability of rolling a 5 on a fair six-sided dice is $\frac{1}{5}$
Explain why Jack is wrong.

1 mark

5 Two bags contain counters as shown.
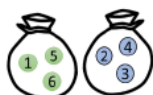
A counter is taken from each bag and the score is the product of these numbers.

a) Complete the table of possible scores.

		Bag 2		
		2	3	4
Bag 1	1	2		4
	5		15	
	6	12		24

2 marks

b) What is the probability that the score is less than 6?

_____

1 mark

c) What is the probability that the score is a multiple of 4?

_____

1 mark

6 The Venn diagram shows how many students in a class have their own TV or a mobile phone.

TV 2 — 9 — 20 Mobile
1
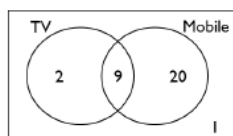
a) How many students have a mobile phone but do not have a TV?

_____

1 mark

b) One student is picked at random. What is the probability that this student has a mobile phone?

_____

1 mark

7 50 people are asked if they studied French or Spanish at school.
8 people studied both French and Spanish.
20 people studied Spanish altogether.
6 people did not study either French or Spanish.

Show this information in the Venn diagram.

French   Spanish
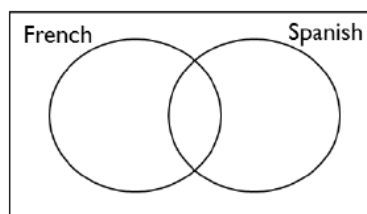
2 marks

8 H There are 2 piles of cards.
- The first pile of cards contains the letters A, B, C, D, E.
- The second pile has the numbers 1 to 12 inclusive.

One card is picked at random from each pile.
How many possible outcomes are there altogether?

_____

2 marks

Total marks [ ]

Mixed A

6.1 1. Which is bigger: $\dfrac{3}{7}$ or $\dfrac{2}{5}$?		*6.6* 11. If x = 2, calculate the value of: $x^3 + x$	
6.1 2. Which is bigger: 0.45 or $\dfrac{2}{5}$?		*6.6* 12. If x = -2, calculate the value of: $x^3 + x$	
6.2 3. Increase £30 by 15%		*6.7* 13. Solve: 2x – 5 = 7	
6.2 4. Decrease £40 by 15%		*6.7* 14. Solve: 3x + 1 = 10	
6.3 5. Divide £300 in a ratio of 3:7		*6.8* 15. Find the nth term of this sequence 1 3 5 7 9 …	
6.3 6. Divide 30 in a ratio of 3:2		16. Work out the area of a parallelogram of base 6cm and height 8cm.	

6.4
 	
7. If 60 marks is 40%, what is full
 	
   marks?
		6.9
		
		17. If y=3x + 2, find the value of y
		
		   when x = -2	

6.4 8. If 400ml of milk is used for 8 pancakes, how much is used for 6?		18. Three of the angles of a quadrilateral are 120^0, 48^0 and 92^0. What is the size of the 4th angle?	
6.5 9. Add: $\dfrac{1}{3}$ and $\dfrac{1}{4}$		19. Work out the area of a triangle of base 6cm and height 8cm.	
6.5 10. Work out: $\dfrac{2}{5}$ of 8		20. Work out the volume of a cuboid 5cm by 3cm by 6cm?	

Mixed B

6.1 1. Which is bigger: $\dfrac{3}{4}$ or $\dfrac{2}{3}$?		*6.6* 11. If x = 3, calculate the value of: $x^3 + x$	
6.1 2. Which is bigger: 30% or $\dfrac{1}{3}$?		*6.6* 12. If x = -3, calculate the value of: $x^3 + x$	
6.2 3. Increase £60 by 15%		*6.7* 13. Solve: 2x – 3 = 6	
6.2 4. Decrease £20 by 15%		*6.7* 14. Solve: 3x + 5 = 14	
6.3 5. Divide £500 in a ratio of 3:7		*6.8* 15. Find the nth term of this sequence 5 7 9 11 13 …	
6.3 6. Divide 80 in a ratio of 3:2		16. Work out the area of a parallelogram of base 10cm and height 4cm.	
6.4 7. If 120 marks is 60%, what is full marks?		*6.9* 17. If y=3x + 2, find the value of y when x = -3	
6.4 8. If 200g of fat is used for 8 cakes, how much is used for 3 cakes?		18. Three of the angles of a quadrilateral are 53^0, 127^0 and 72^0. What is the size of the 4th angle?	
6.5 9. Add: $\dfrac{1}{5}$ and $\dfrac{1}{2}$		19. Work out the area of a triangle of base 5cm and height 6cm.	
6.5 10. Work out: $\dfrac{2}{3}$ of 8		20. Work out the volume of a cuboid 10cm by 3cm by 2cm?	

Mixed C

6.1 1. Which is bigger: $\dfrac{3}{4}$ or $\dfrac{4}{5}$?		*6.6* 11. If x = 2, calculate the value of: $x^3 - x$	
6.1 2. Which is bigger: 0.3 or $\dfrac{1}{3}$?		*6.6* 12. If x = -2, calculate the value of: $x^3 - x$	
6.2 3. Increase £60 by 10%		*6.7* 13. Solve: 2x – 1 = 10	
6.2 4. Decrease £40 by 10%		*6.7* 14. Solve: 3x + 17 = 14	
6.3 5. Divide £56 in a ratio of 5:3		*6.8* 15. Find the nth term of this sequence 2 5 8 11 14 …	
6.3 6. Divide 28 in a ratio of 3:4		16. Work out the area of a parallelogram of base 7cm and height 3cm.	
6.4 7. If 30 marks is 40%, what is full marks?		*6.9* 17. If y=2x - 3, find the value of y when x = 2	
6.4 8. If 150g of sugar is used for 5 cakes, how much is used for 7 cakes?		18. Three of the angles of a quadrilateral are 148^0, 104^0 and 36^0. What is the size of the 4th angle?	
6.5 9. Work out: $\dfrac{4}{5}$ - $\dfrac{1}{2}$		19. Work out the area of a triangle of base 9cm and height 4cm.	
6.5 10. Work out: $\dfrac{3}{5}$ of 7		20. Work out the volume of a cuboid 6cm by 4cm by 2.5cm?	

Mixed D

6.1 1. Which is bigger: $\dfrac{2}{3}$ or $\dfrac{4}{5}$?		*6.6* 11. If x = 3, calculate the value of: $x^3 - x$	
6.1 2. Which is bigger: 67% or $\dfrac{2}{3}$?		*6.6* 12. If x = -3, calculate the value of: $x^3 - x$	
6.2 3. Increase £42 by 10%		*6.7* 13. Solve: 4x – 5 = 9	
6.2 4. Decrease £64 by 10%		*6.7* 14. Solve: 2x + 7 = 3	
6.3 5. Divide £56 in a ratio of 4:3		*6.8* 15. Find the nth term of this sequence 7 10 13 16 19 …	
6.3 6. Divide 72 in a ratio of 3:5		16. Work out the area of a parallelogram of base 10cm and height 7cm.	
6.4 7. If 80% is 60 marks, what is full marks?		*6.9* 17. If y=5x - 3, find the value of y when x = 0	
6.4 8. If 450g of flour is used for 3 pies, how much is used for 4 pies?		18. Three of the angles of a quadrilateral are 100^0, 104^0 and 44^0. What is the size of the 4th angle?	
6.5 9. Work out: $\dfrac{4}{5} - \dfrac{2}{3}$		19. Work out the area of a triangle of base 12cm and height 7cm.	
6.5 10. Work out: $\dfrac{4}{7}$ of 5		20. Work out the volume of a cube of edge 5cm.	

Mixed E

6.1		6.6	
1. Which is bigger: $\frac{5}{8}$ or 0.58?		11. If x = 3, calculate the value of: $x^2 + x$	
6.1		*6.6*	
2. Which is bigger: 15% or $\frac{1}{5}$?		12. If x = -3, calculate the value of: $x^2 + x$	
6.2		*6.7*	
3. Increase £40 by 20%		13. Solve: 2(x – 1) = 4	
6.2		*6.7*	
4. Decrease £60 by 20%		14. Solve: 2x + 7 = - 3	
6.3		*6.8*	
5. Divide 180^0 in a ratio of 4:5:9		15. Find the nth term of this sequence 1 5 9 13 17 …	
6.3		16. Work out the area of a parallelogram of base 10cm and height 7cm.	
6. Divide 42 in a ratio of 1:2:3			
6.4		*6.9*	

7. If 80% is 72 marks, what is full
 	
   marks?
		17. If y=4x + 5, find the value of y
		
		      when x = 0	

6.4		18. Three of the angles of a quadrilateral are 90^0, 156^0 and 28^0. What is the size of the 4th angle?	
8. If a litre of water is provided for 5 people, how much for 7 people?			
6.5		19. Work out the area of a triangle of base 7.5m and height 6cm.	
9. Work out: $\frac{4}{5} + \frac{3}{4}$			
6.5		20. Work out the volume of a cube of edge 3cm.	
10. Work out: $5 \times \frac{5}{6}$			

Mixed F

6.1 1. Which is bigger: $\dfrac{3}{8}$ or 0.38?		*6.6* 11. If x = 3, calculate the value of: x^2 - x	
6.1 2. Which is bigger: 0.6 or 0.58?		*6.6* 12. If x = -3, calculate the value of: x^2 - x	
6.2 3. Increase £80 by 20%		*6.7* 13. Solve: 2(x – 2) = 6	
6.2 4. Decrease £600 by 20%		*6.7* 14. Solve: 2x + 3 = - 1	
6.3 5. Divide 25kg in a ratio of 2:3:5		*6.8* 15. Find the nth term of this sequence 8 12 16 20 24 ...	
6.3 6. Divide £42 in a ratio of 4:6		16. Work out the area of a parallelogram of base 5m and height 3m.	
6.4 7. If 80% is 8km, what is the full distance?		*6.9* 17. If y=3x - 5, find the value of y when x = -1	
6.4 8. If a litre of water is provided for 20 people, how much for 50 people?		18. Three of the angles of a quadrilateral are 82^0, 114^0 and 95^0. What is the size of the 4th angle?	
6.5 9. Work out: $\dfrac{4}{5}$ - $\dfrac{1}{4}$		19. Work out the area of a triangle of base 8.2m and height 5m.	
6.5 10. Work out: $5 \times \dfrac{3}{4}$		20. Work out the volume of a cube of edge 2m.	