Grade C Practice Sheet 1 – do the calculations in your exercise book and write the answer in the space provided

Number

Jack has £8. This is two thirds of his age. How old is he?

3 Write 60 as the product of its prime factors

Calculating

Increase £40 by 15%

Write down the reciprocal of 10

Estimate the following calculation:

$$\frac{20.2 \times 5.9}{9.8}$$

Solve: $3x + 8 = 2$

Find the mean from this grouped frequency table

Height	Frequency	midpoint	Mid$x$freq
$0 \leq h < 2$	5		
$2 \leq h < 6$	3		
$6 \leq h < 8$	2		

Mean =

Equation Solving

$Solve: 5x + 3 = 2x + 11$

$Solve: \frac{2x}{3} = 11$

Find: $4(3x + 2)$

Write down all integers satisfying

$$-3 \leq x < 4$$

Evaluate the following when $a = 4$ and $b = 3$

$$10a - b$$

Find the first three terms in the sequence: $n^2 + 3$

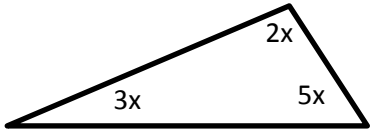
Find nth term of the sequence:

$$8, 12, 16, 20 \ldots$$

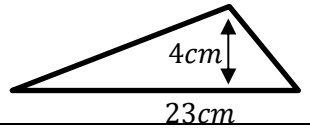
Complete this table for the function $y = x^2 + 3$

x	-1	0	1	2
y				

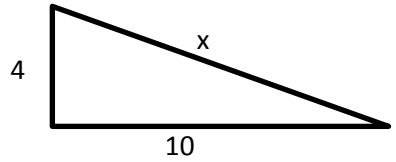
Set up an equation and find x



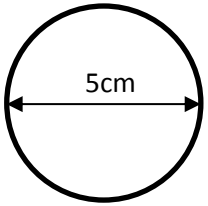
Find the area of this triangle in cm^2



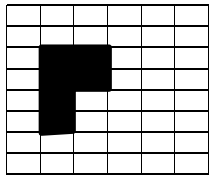
Use Pythagoras to find the missing length



Find the area and circumference of this circle



Translate the following shape by the vector $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$



Use Trial and Improvement to solve the $x^3 + 2x = 17$ to 1 dp

x	$x^3 + 2x$	Comment
2		

Grade C Practice Sheet 2 – do the calculations in your exercise book and write the answer in the space provided

Number

Peter spends $\frac{2}{5}$ of his money and has £18 left. How much did he have before?

3 Write 120 as the product of its prime factors

Calculating

Decrease £300 by 22%

Write down the reciprocal of ½

Estimate the following calculation:

$$\frac{3.2^2}{0.49}$$

Solve: $12 - 3x = 3$

Find the mean from this grouped frequency table

Height	Frequency	midpoint	Mid×freq
$0 \leq h < 3$	3		
$3 \leq h < 6$	5		
$6 \leq h < 9$	2		

Mean =

Equation Solving

$Solve: 4x - 3 = 8x - 15$

$Solve: \frac{x}{3} + 1 = 11$

Find: $x(x + 4)$

Represent $-3 \leq x < 2$ on a number line

Evaluate the following when $a = 5$ and $b = 2$

$3a^2 + 2b$

Find the first three terms in the sequence: $10 - n^2$

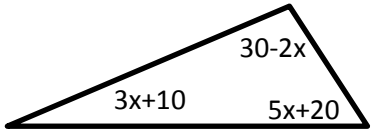
Find nth term of the sequence:

7,9,11,13 …

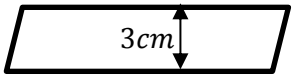
Complete this table for the function $y = 2x^2 + 1$

x	-1	0	1	2
y				

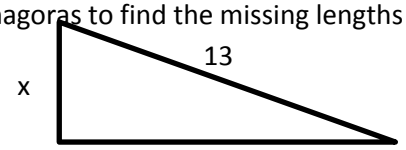
Set up an equation and find x



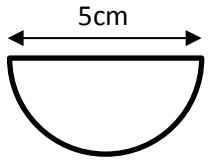
Find the area of this parallelogram in cm^2



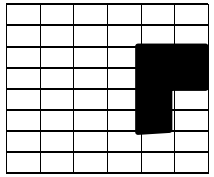
Use Pythagoras to find the missing lengths



Find the area of this semi- circle



Translate the following shape by the vector $\begin{pmatrix} -4 \\ 2 \end{pmatrix}$



Use Trial and Improvement to solve the $x^3 - x = 10$ to 1 dp

x	$x^3 - x$	Comment
2		

Grade C: Core Practice Sheet 3

Number

Simon and Sally shares £300 in the ratio 11: 19. How much does Simon receive?

3 Write 72 as the product of its prime factors

Calculating

Increase £32 by 5%

Find $23 \div 0.1$ without a calculator

Estimate the following calculation:

$$3.2 + 5.7 \times 1.9$$

Solve: $5(x + 2) = 11$

Estimate the mean from this grouped frequency table

Height	Frequency	Midpoint	Mid×freq
$2 \leq h < 3$	7		
$3 \leq h < 4$	3		
$4 \leq h < 5$	5		

Mean =

Equation Solving

$$\frac{10}{x} = 2$$

Simplify $5^7 \times 5^{11}$

Simplify: $3 + 2(3x + 4)$

Solve: $\frac{3x}{2} < 6$

Evaluate the following when $a = 5$ and $b = 4$

$$ab + 3b$$

Which is the first negative term in the sequence $90 - n^2$

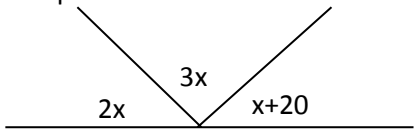
Find nth term of the sequence:

$$14, 10, 6, 2 \ldots$$

Complete this table for the function $y = x^2 + x$

x	-1	0	1	2
y				

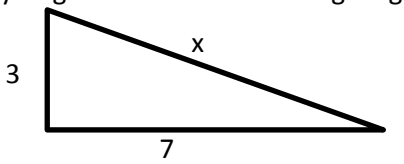
Set up an equation and find x



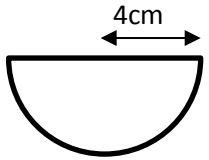
What is the sum of the EXTERIOR ANGLES OF A POLYGON?.....

One exterior angle of a regular polygon is equal to $36°$, how many sides must it have?.....

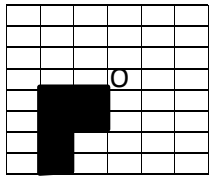
Use Pythagoras to find the missing length



Find the Perimeter of this semi-circle



Rotate $90°$ clockwise about the point O



Pauline travels between 11.45am and 13.05 pm at a speed of 12mph. How far does she travel?

Sam tosses a coin 10 times and gets 3 heads. Write down the relative frequency of getting a head.

The probability of getting PINK on a spinner is 0.32. How many times would YOU EXPECT to get PINK if you spin the spinner 300 times?

Grade C: Core Practice Sheet 4

Number

Tom's ratio of goals scored to matches played is 7:12. Pauls' is 5:9. Who has the better record?

Write 105 is the product of its prime factors

Calculating

Reduce £40 by 18%

Write down the reciprocal of $\frac{2}{3}$

Estimate the following calculation:

$$\frac{4.1 + 2.2^2}{0.49}$$

Solve: $12 - 0.5x = x$

Estimate the mean from this grouped frequency table

Height	Frequency	Midpoint	Mid×freq
$1 \leq h < 2$	2		
$2 \leq h < 3$	2		
$3 \leq h < 4$	1		

Mean =

Solve:

$$\frac{5x}{2} - 1 = 3$$

Simplify: $5 - 3(x - 2)$

Solve: $5x + 3 > 2x + 12$

Evaluate the following when $a = 5$ and $b = -4$

$$ab^2$$

What is the first term above 100 in the sequence $n^3 + 40$

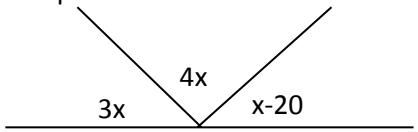
Find nth term of the sequence:

$$4, 8, 12, 16 \ldots$$

Complete this table for the function $y = 2x^2$

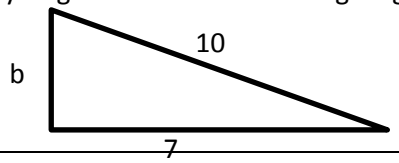
x	-1	0	1	2
y				

Set up an equation and find x

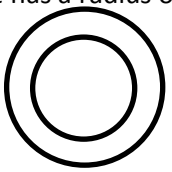


What is one interior angle of a regular PENTAGON equal to?

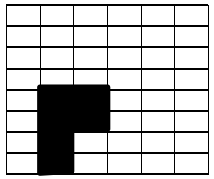
Use Pythagoras to find the missing length



Find the area of the following ring in terms of π
The outer circle has a radius of 4
The inner circle has a radius of 3



Translate this shape by the vector $\begin{pmatrix} 2 \\ 2 \end{pmatrix}$



Samantha travels 7 miles in 6 minutes. What is her average speed?

Five people have a mean height of 1.2m. A person with a height of 1.8m arrives. What is the new mean height?

On a spinner with only Red and Green sections. $p(red) = 0.2$. How many Green would you expect with 20 throws?

Grade C: Core Practice Sheet 5

Number

Carl mixes white and red paint in the ratio 7:18. What percentage of the paint is white?

Write 138 as the product of its prime factors

Calculating

A TV rises from £320 to £368. What is the percentage increase?

Write down the reciprocal of 0.2

Estimate the following calculation:

$$\frac{1.2 + 7.9 \times 1.9}{0.19}$$

Solve: $1.2x + 8 = 0.7x$

Estimate the mean from this grouped frequency table

Height	Frequency	Midpoint	Mid×freq
$0 \leq h < 2$	43		
$2 \leq h < 4$	27		
$4 \leq h < 6$	30		

Mean =

Solve:

$$\frac{12}{3x} + 1 = 15$$

Simplify: $3x - 2(4x - 9)$

Solve: $15 - 2x > 7$

Evaluate the following when $a = 5$ and $b = -3$

$$b^3 + a$$

Is the third term in the sequence $19 - 3n$ prime?

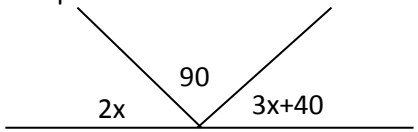
Find nth term of the sequence:

$$23, 17, 11, 5$$

Complete this table for the function $y = x^2 - x$

x	-1	0	1	2
y				

Set up an equation and find x



Is it possible for the exterior angle of a regular polygon to equal $40°$. If so, how many sides does it have?

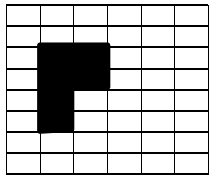
Use Pythagoras to find the possible heights of a isosceles triangle which has one side equal to 6cm and another side equal to 5cm

A bike wheel has a radius of 26cm.

a) What is the circumference

b) How many times would it have rotated if the bike has travelled 3km?

Translate this shape by the vector $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$



Mike leaves for work at 7.00 and needs to arrive by 9.15. His average speed is 40mph. Will he arrive if the distance is 95 miles? If not, how close will he be?

Three numbers have a mode of 3 and a mean of 10. What are the three numbers?

Sarah rolls a biased dice 20 times and gets a six 4 times. Write down the relative frequency of getting a six as a decimal

Grade C Practice Sheet 6 – do the calculations in your exercise book and write the answer in the space provided

Number

Paul loses $\frac{3}{4}$ of his money and has £300 left. How much did he have?

3 Write 110 as the product of its prime factors

Calculating

Decrease £55 by 98%

Write down the reciprocal of 0.3 as a fraction

Estimate the following calculation:

$$\frac{9.1 - 2.3}{0.24}$$

Solve: $0.2x + 5 = 7$

Find the mean from this grouped frequency table

Height	Frequency	midpoint	Mid$x$freq
$0 \leq h < 1$	10		
$1 \leq h < 2$	5		
$2 \leq h < 3$	5		

Mean =

Equation Solving

$Solve: 5x + 3 = 12 - 4x$

$Solve: \frac{3x}{2} - 1 = 4$

Expand: $4(5x + 2y)$

Write down all integers satisfying

$$-3.2 \leq x < 4.1$$

Evaluate the following when $a = 4$ and $b = 7$

$$10ab$$

Find the first three terms in the sequence: $n^3 + 1$

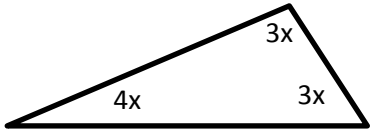
Find nth term of the sequence:

7,11,15,19 …

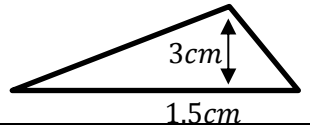
Complete this table for the function $y = x^2 - 1$

x	-1	0	1	2
y				

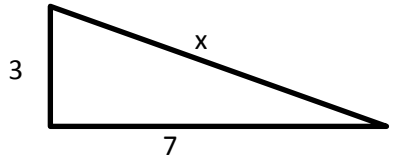
Set up an equation and find x



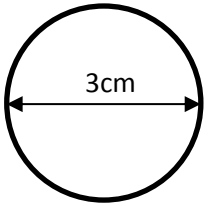
Find the area of this triangle in cm^2



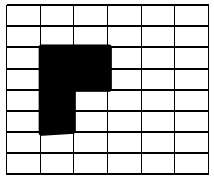
Use Pythagoras to find the missing length



Find the area and circumference of this circle



Translate the following shape by the vector $\begin{pmatrix} -1 \\ -1 \end{pmatrix}$



Use Trial and Improvement to solve the $x^3 + x = 11$ to 1 dp

x	$x^3 + 2x$	Comment
2		

Grade C Practice Sheet 7 – do the calculations in your exercise book and write the answer in the space provided

Number

Pam gets 1/5 of 10 kg cake. Paul gets 3/8 of what is left. How much more does Paul get?

3 Write 300 as the product of its prime factors

Calculating

Decrease £350 by 13%

Write down the reciprocal of $\frac{2}{3}$ as a decimal

Estimate the following calculation:

$$\frac{9.8}{0.49^2}$$

Solve: $15 - 2x = 12$

Find the mean from this grouped frequency table

Height	Frequency	midpoint	Mid×freq
$0 \leq h < 3$	2		
$3 \leq h < 6$	7		
$6 \leq h < 9$	1		

Mean =

Equation Solving

$Solve: 15 - 10x = 0$

$Solve: \frac{12}{x} = 4$

Find: $x(x-2)$

Represent $x < 5$ on a number line

Evaluate the following when $a = 2$ and $b = 3$

$$a^2 - ab$$

Find the first three terms in the sequence: $2 - n$

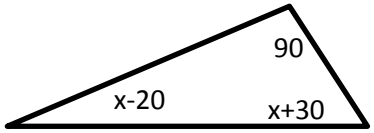
Find nth term of the sequence:

$6, 7.5, 9, 10.5$ …

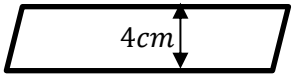
Complete this table for the function $y = 2x^2$

x	-1	0	1	2
y				

Set up an equation and find x

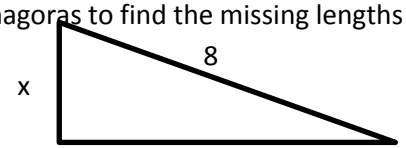


Find the area of this parallelogram in cm^2

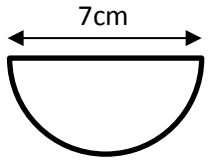


15mm

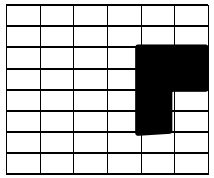
Use Pythagoras to find the missing lengths



Find the area of this semi- circle



Translate the following shape by the vector $\begin{pmatrix} -4 \\ -1 \end{pmatrix}$



Use Trial and Improvement to solve the $x^3 - x = 20$ to 1 dp

x	$x^3 - x$	Comment
2		

Grade C: Core Practice Sheet 8

Number

Mike and Kim shares £120 in the ratio 3: 5. How much does Kim receive?

Write 138 as the product of its prime factors

Calculating

Increase £40 by 1.5%

Find $17 \div 0.2$ without a calculator

Estimate the following calculation:

$$19.7 - 3.6 \times 1.9$$

Solve: $3 + 2(x + 1) = 15$

Estimate the mean from this grouped frequency table

Height	Frequency	Midpoint	Mid×freq
$2 \leq h < 3$	1		
$3 \leq h < 5$	2		
$5 \leq h < 9$	2		

Mean =

Equation Solving

$$\frac{10}{3x} = 5$$

Simplify $3^{12} \div 3^4$

Simplify: $x + 3x(x + 2)$

Solve: $2x + 7 < 13$

Evaluate the following when $a = 2$ and $b = 0.5$

$$10b + 3a$$

Which is the first negative term in the sequence $30 - 7n$

Find nth term of the sequence:

$$17, 15, 13, 11 \ldots$$

Complete this table for the function $y = x^2 + 2x$

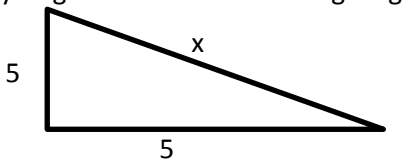
x	-1	0	1	2
y				

A regular polygon has 8 sides.

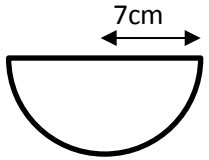
How large is one of its exterior angles?

How large is one of its interior angles?

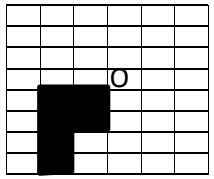
Use Pythagoras to find the missing length



Find the Perimeter of this semi-circle



Rotate180° about the point O



Simon Slow travels 300m in ten minutes. Find his speed in km/hour

Sam tosses a coin 100 times and gets 33 heads. Write down the relative frequency of getting a tail.

On a biased coin, the probability of getting a head is 0.7. How many tails would you expect to get if you toss the coin 30 times?

Grade C: Core Practice Sheet 9

Number

Tom's ratio of goals scored to matches played is 3:4. Pauls' is 5:7. Who has the better record?

Write 99 is the product of its prime factors

Calculating

A £400 car depreciates by 15%. What is it now worth?

Write down the reciprocal of 0.01

Estimate the following calculation:

$$\frac{3.1^3}{9.8}$$

Solve: $3 - 2x = 8x$

Estimate the mean from this grouped frequency table

Height	Frequency	Midpoint	Mid×freq
$1 \leq h < 2$	5		
$2 \leq h < 3$	3		
$3 \leq h < 4$	2		

Mean =

Solve:

$$\frac{3x}{5} - 4 = 6$$

Simplify: $5 - 3(2x - 7)$

Solve: $4x + 3 > 7x - 13$

Evaluate the following when $a = 4$ and $b = -2$

$$(ab)^2$$

What is the first term above 50 in the sequence $n^2 + 2$

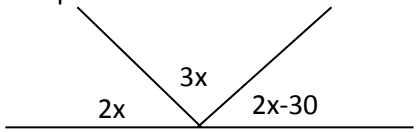
Find nth term of the sequence:

$$14, 20, 26, \ldots$$

Complete this table for the function $y = x^3$

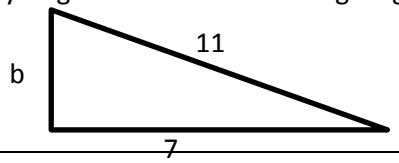
x	-1	0	1	2
y				

Set up an equation and find x

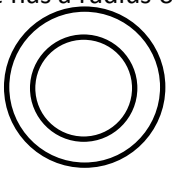


A regular polygon has an interior angle of 178 degrees. How many sides does it have?

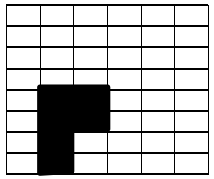
Use Pythagoras to find the missing length



Find the area of the following ring in terms of π
The outer circle has a radius of 7cm
The inner circle has a radius of 2cm



Translate this shape by the vector $\begin{pmatrix} 3 \\ 2 \end{pmatrix}$



Samantha travels 3 miles in 2 minutes. What is her average speed in mph?

The mean weight of 4 people is 70kg. One of person who has a weight of 40kg leaves the room. What is the new mean weight of the people?

A spinner has three colours red, green and blue with areas in the ratio of 1:2:5. How many red's would you expect if you spin it 160 times?

Grade C Practice Sheet 10 – do the calculations in your exercise book and write the answer in the space provided

Number

Mike eats half of a cake. Simon eats 10% of what is left. What percentage of cake is left for Sally?

3 Write 140 as the product of its prime factors

Calculating

Increase £320 by 22%

Write down the reciprocal of 0.5

Estimate the following calculation:

$$\frac{4.9^2}{0.49}$$

Solve: $5x + 3 = -7$

Horatio catches 25 fish between 11.00 and 13.30. What is the mean number of fish he catches per hour?

Equation Solving

$Solve: 4x + 2 = 7 - 2x$

$$Solve: \frac{5x}{7} + 1 = 11$$

Expand: $5(3x + 1) + 2$

Represent: $x > 2$ on a number line

Evaluate the following when $a = 4$ and $b = 3$

$$a^2 + 2b$$

Find the first three terms in the sequence: $12 - 3n$

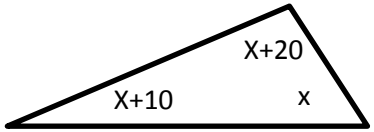
Find nth term of the sequence:

$5,9,13,17,21 \ldots$

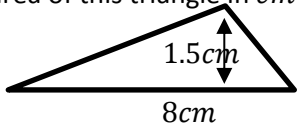
Complete this table for the function $y = x^2 - 1$

x	-1	0	1	2
y				

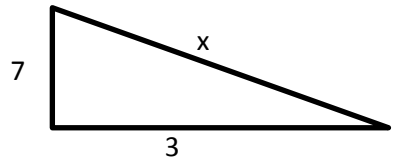
Set up an equation and find x



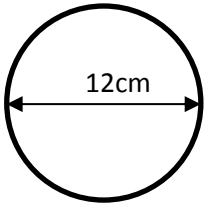
Find the area of this triangle in cm^2



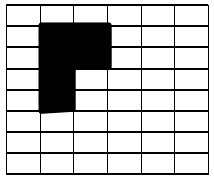
Use Pythagoras to find the missing length



Find the area and circumference of this circle



Translate the following shape by the vector $\begin{pmatrix} 2 \\ -3 \end{pmatrix}$



Use Trial and Improvement to solve the $x^3 + x = 25$

x	$x^3 + x$	Comment
2		

Grade C Practice Sheet 11 – do the calculations in your exercise book and write the answer in the space provided

Number

Pink paint is made by mixing red and white in the ratio 7:13. What percentage is red?

3 Write 56 as the product of its prime factors

Calculating

Increase £40 by 12%

Write down the reciprocal of 0.25

Estimate the following calculation:

$$\frac{5.2 + 11}{2.2}$$

Solve: $11(x - 2) + 1 = 3$

Find the mean from this grouped frequency table

Height	Frequency	midpoint	Mid×freq
$0 \leq h < 4$	8		
$4 \leq h < 6$	1		
$6 \leq h < 8$	1		

Mean =

Equation Solving

$Solve: 4(x + 2) = 3(x - 7)$

$Solve: \frac{2x}{5} = 11$

Find: $2(x + 3) + 4(2x - 7)$

Represent $x > 6$ on a number line

Evaluate the following when $a = 3$ and $d = -2$

$ad + 5a$

Find the first three terms in the sequence: 5^n

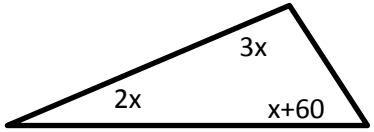
Find nth term of the sequence:

$-3, 2, 7, 12, \ldots$

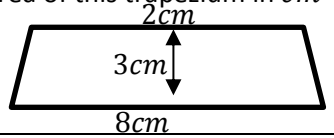
Complete this table for the function $y = 5 + x^2$

x	-1	0	1	2
y				

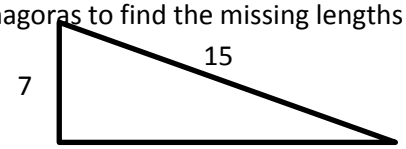
Set up an equation and find x



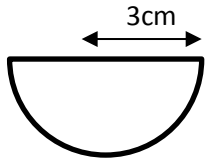
Find the area of this trapezium in cm^2



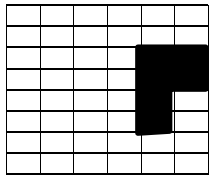
Use Pythagoras to find the missing lengths



Find the area of this semi- circle



Translate the following shape by the vector $\begin{pmatrix} -3 \\ -1 \end{pmatrix}$



Use Trial and Improvement to solve the $x^3 + 2x = 20$ to 1 dp

x	$x^3 + 2x$	Comment
2		