

PICK

TMIX

Crossover

Paper 1

Solutions

	Q	Topic	My Mark	Max Marks
Non Calculator	1	Calculating with fractions		8
	2	Inequalities		8
Calculator	3	Simple and compound interest		4
	4	Speed, distance and time		4
	5	Expanding and Factorising		6
	6	Angles on parallel lines and on polygons		5
				35

Revision list:

What I need to remember:

A Jagger

Question 1

Work out.

a) $\frac{3}{7} + \frac{2}{3}$

Give your answer as a mixed number.

$$= \frac{9}{21} + \frac{14}{21} \quad [1]$$

$$= \frac{23}{21} \quad [2]$$

$$= 1\frac{2}{21} \quad [3]$$

$$\dots\dots\dots 1\frac{2}{21} \quad [3] \dots\dots\dots$$

[3]

b) $1\frac{3}{4} \times 2\frac{2}{5}$

Give your answer as a mixed number in its simplest form.

$$= \frac{7}{4} \times \frac{12}{5} \quad [1] \text{ *either seen* }$$

$$= \frac{84}{20} \quad [2]$$

$$= \frac{21}{5} = 4\frac{1}{5} \quad [3]$$

$$\dots\dots\dots 4\frac{1}{5} \quad [3] \dots\dots\dots$$

[3]

c) $\frac{1}{2} \div \frac{1}{8}$

$$= \frac{1}{2} \times \frac{8}{1} \quad [1] \text{ *or* } \frac{1}{2} \times 8 \text{ *or* } \frac{4}{8} \div \frac{1}{8}$$

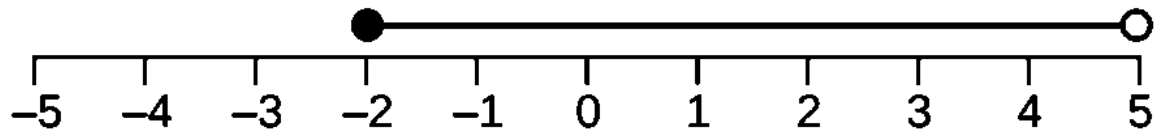
$$= 4 \quad [2]$$

$$\dots\dots\dots 4 \quad [2] \dots\dots\dots$$

[2]

Question 2

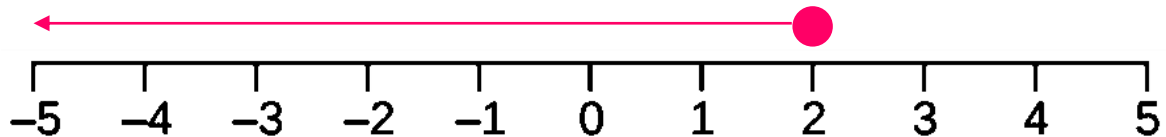
a) Write down the inequality shown on the number line below.



Correct but with one or both symbols incorrect [1]

..... $-2 \leq x < 5$ [2].....
[2]

b) Represent the inequality $x \leq 2$ on the number line below.



[1]

[1]

c) Solve the inequalities:

i. $4x + 9 \leq 21$

$x = 3$ [1] *or* $4x \leq 12$

$x \leq 3$ [2]

..... $x \leq 3$ [2].....
[2]

ii. $10a + 15 > 3a - 6$

$7a = -21$ [1] *or* $7a + 15 > -6$

$a = -3$ [2] *or* $7a > -21$

$a > -3$ [3]

..... $a > -3$ [3].....

[3]

Question 3

James invested £2000 for three years in an Internet Savings Account.
He is paid 5.5% per annum compound interest.
John invested £3500 for three years in a standard interest account.
He is paid 4% per year.
Work out who earns the most interest at the end of the three years.

James has $2000 \times 1.055^3 = £2348.48$ [1] method

James earns £348.48 interest [1]

John earns $3500 \times 0.04 \times 3 = £420$ interest [1] method

John earns the most interest [1] with correct working

..... *John*
[4]

Question 4

Miss Tyrrell catches the 9:45am bus from Leeds to London.
The distance between the two cities is 195 miles.
The bus travels at an average speed of 52 mph.
What time should she arrive in London?

Time = Distance $\div$ Speed

Time = $195 \div 52$ [1]

Time = 3.75 hours [2]

Time = 3 hours 45 minutes [3]

Arrival time = 9:45am + 3 hours 45 minutes

Arrival time = 1:30pm [4]

..... *1:30pm* [4] ...
[4]

Question 5

a) Show that $4(a + 3) - 3(a - 2) = a + 18$.

$$4a + 12 - 3a + 6 \quad [1] \quad \text{allow } -6$$

$$= a + 18 \quad [2] \quad \text{must be } +6 \text{ on top line}$$

b) Factorise fully

$$2x^2 + 4x$$

$$[1] \quad 2(x^2 + 2x) \text{ or } x(2x + 4) \text{ oe}$$

$$\dots\dots\dots 2x(x + 2) \quad [2] \dots\dots\dots [2]$$

c) Expand and simplify.

$$(x + 7)(x - 3)$$

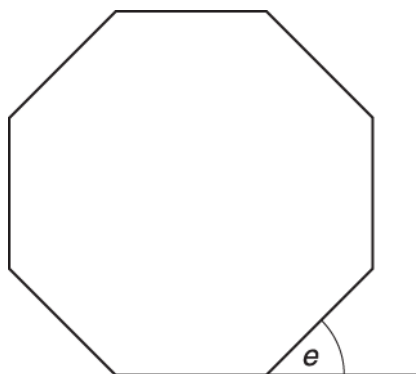
$$= x^2 + 7x - 3x - 21 \quad [1] \quad \text{for three correct from}$$

$$= x^2 + 4x - 21 \quad [2] \quad \text{any order}$$

$$\dots\dots\dots x^2 + 4x - 21 \quad [2] \dots\dots\dots [2]$$

Question 6

- a) This **regular** shape has 8 sides.
One side of the shape is extended as shown.



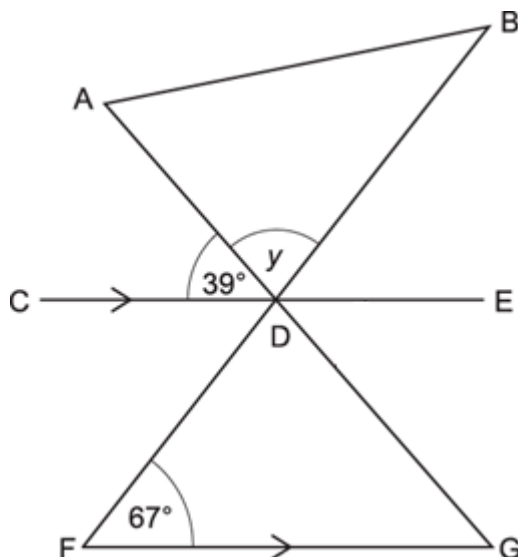
Not to scale

Work out the size of angle e.

$360 \div 8$ [1] or 135 as interior angle

.....45 [2].....°
[2]

- b) In the diagram, CDE is parallel to FG.
ADG and BDF are straight lines.



Not to scale

Work out angle y.

Angle CDF = 67 [1] or seen on diagram

$180 - 67 - 39$ [2]

$= 74^\circ$ [3]

.....74 [3].....°
[3]