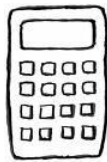


Name: _____

Teacher
Assessment



Section A Brackets and Fractions Grade F → D

1. Solve the equations

(a) $3x = 12$

.....

Answer $x =$

(1)

(b) $y + 7 = 13$

.....

Answer $y =$

(1)

(c) $8z - 5 = 11$

.....

.....

Answer $z =$

(2)

(d) $3(w - 2) = 9$

.....

.....

.....

Answer $w =$

(3)(Total 7 marks)

2. Solve these equations.

(i) $\frac{x}{3} = 5$

.....

Answer $x =$

(1)

(ii) $2(3y - 5) = 20$

.....

.....

Answer $y =$

(3)(Total 4 marks)

3. Solve these equations.

(a) $3p - 5 = 7$

.....
.....

Answer $p =$ (2)

(b) $\frac{q}{3} = -4$

.....
.....

Answer $q =$ (2)

(c) $2(x + 3) = 11$

.....
.....

Answer $x =$ (3) (Total 7 marks)

4. Solve the equations

(i) $2x = 24$

Answer $x =$ (1)

(ii) $y - 9 = 11$

Answer $y =$ (1)

(iii) $\frac{z}{4} = 8$

.....
.....

Answer $z =$ (1)

(iv) $4w + 3 = 13$

.....
.....

Answer $w =$ (2)(Total 5 marks)

5. Solve the equations.

(a) $5x = 35$

.....

Answer $x =$

(1)

(b) $y - 7 = 18$

.....

Answer $y =$

(1)

(c) $4z - 5 = 11$

.....

.....

Answer $z =$

(2)

(d) $7(2t + 1) = 35$

.....

.....

.....

Answer $t =$

(3)(Total 7 marks)

6. Fergus thinks of a number. He multiplies it by 3 and then adds 8. The answer is 35. What is the number?

.....

.....

Answer

(Total 2 marks)

7. Solve the equations

(a) $\frac{20}{x} = 4$

.....

.....

.....

Answer $x =$

(2)

(b) $\frac{y}{3} + 5 = 9$

.....
.....

Answer $y =$

(2)(Total 4 marks)

8. Solve the following equation $\frac{z+4}{2} = 11$

.....
.....
.....

Answer $z =$

(Total 2 marks)

9. Solve the equation $\frac{17-y}{3} = 4.5$

.....
.....
.....

Answer $y =$

(Total 3 marks)

10. Solve these equations.

(a) $\frac{x}{2} = 12$

.....

Answer $x =$

(1)

(b) $\frac{2t+5}{3} = 7$

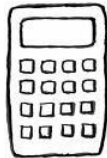
.....
.....
.....

Answer $t =$

(3)(Total 4 marks)

Success:

Target:



Section B Equations with Unknowns on Both Sides Grade C

1. Solve the equation $5x + 4 = 3x + 7$

.....
.....
.....
.....

Answer $x =$
(Total 3 marks)

2. Solve the following equation $2x - 3 = 5x + 6$

.....
.....
.....
.....

Answer $x =$
(Total 3 marks)

3. Solve these equation $7s + 2 = 5s + 3$

.....
.....
.....
.....

Answer $s =$
(Total 3 marks)

4. Solve these equation $7z + 2 = 9 - 3z$

.....
.....
.....
.....

Answer $z =$
(Total 3 marks)

5. Solve the equation $3w + 4 = 19 - 2w$

.....
.....
.....

Answer $w =$

(Total 3 marks)

6. Solve $3(x - 2) = 5x - 5$

.....
.....
.....
.....

Answer $x =$

(Total 3 marks)

7. Solve the equation $2(x + 5) = 7 - 4x$

.....
.....
.....
.....

Answer $x =$

(Total 3 marks)

8. Solve the equation $5y + 11 = 3(y + 7)$

.....
.....
.....

Answer $y =$

(Total 3 marks)

9. Solve the equation $4(y + 3) = 9(y - 2)$

.....
.....
.....
.....

Answer $y =$

(Total 3 marks)

10. Solve the equation $4(z - 1) = 2(z + 3)$

.....
.....
.....

Answer $z =$

(Total 3 marks)

11. (a) Expand and simplify $2(3x - 2) + 4(x + 5)$

.....
.....
.....

Answer

(2)

(b) Solve the equation $2(3x - 2) + 4(x + 5) = 4(x - 2)$

.....
.....
.....
.....
.....

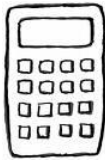
Answer $x =$

(3)

(Total 5 marks)

Success:

Target:



Section C Forming and Solving Equations Grade C

1. Ali is x cm tall.

- (a) Suki is 5 cm taller than Ali.
Write down an expression in x for Suki's height.

.....

Answer cm

(1)

- (b) Ali's sister is 2 cm shorter than Ali.
Write down an expression in x for the height of Ali's sister.

.....

Answer cm

(1)

- (c) Ali's father is twice as tall as Ali.
Write down an expression in x for the height of Ali's father.

.....

Answer cm

(1)

- (d) Darius has a height, in cm, given by the expression $2x - 65$
He is 115 cm tall.

Solve the equation

$$2x - 65 = 115$$

to find Ali's height.

.....

.....

.....

Answer cm

(2)

(Total 5 marks)

2. Matt thinks of a number.
He multiplies it by 4 and then takes away 5.
The answer is 39.

What was the number?

.....
.....

Answer

(Total 2 marks)

3. In the table below, the letters w , x , y and z represent different numbers. The total of each row is given at the side of the table.

w	w	w	w	24
w	w	x	x	28
w	w	x	y	25
w	x	y	z	23

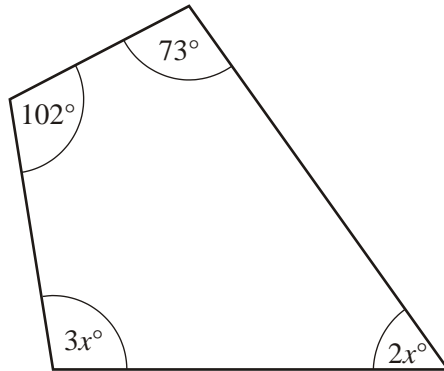
Find the values of w , x , y and z .

.....
.....
.....
.....

Answer $w = \dots\dots\dots$, $x = \dots\dots\dots$, $y = \dots\dots\dots$, $z = \dots\dots\dots$

(Total 4 marks)

4. The angles of a quadrilateral add up to 360° .



Not drawn accurately

- (a) Write down an equation in x .

.....
.....

(2)

- (b) Use your equation to find the largest angle in the quadrilateral.

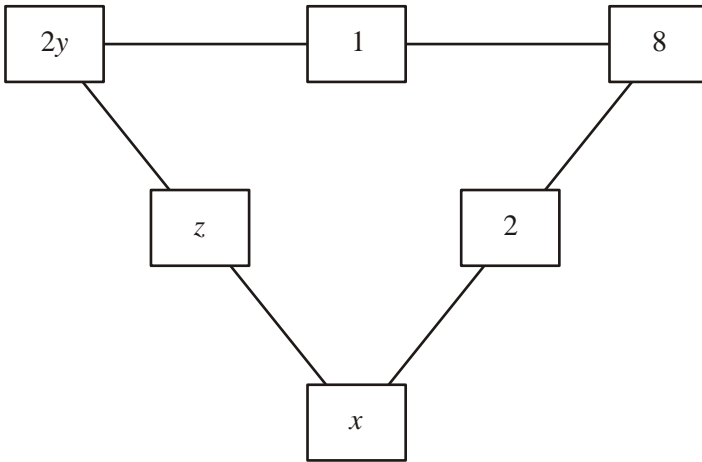
.....
.....
.....
.....

Answer degrees

(3)

(Total 5 marks)

5. The total for the three numbers along each side of the triangle is 17.



Find the values of x , y and z .

.....

.....

.....

.....

.....

Answer $x =$

$y =$

$z =$

(Total 4 marks)

6. Kris is x years old.
Jodie is 5 years younger than Kris.
Their combined ages add up to 41 years.

Form an equation in x and solve it to find Kris's age.

.....

.....

.....

.....

Answer.....years

(Total 3 marks)

7. Part of a number grid is shown below.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48

The shaded shape is called L_3 because it has the number 3 at the top.
The sum of the numbers in L_3 is 26.

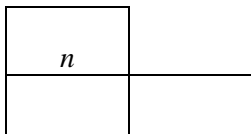
(a) Calculate the sum of the numbers in L_{22}

.....

Answer

(1)

(b) Fill in the empty squares of L_n



(2)

(c) Write down an expression, in terms of n , for the sum of the numbers in L_n
Simplify your expression.

.....

.....

Answer

(2)

(d) If the sum of the numbers in L_n is 143, find the value of n .

.....

.....

.....

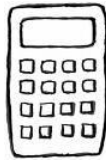
Answer

(2)

(Total 7 marks)

Success:

Target:



Section D **Trial and Improvement** **Grade C**

1. Laura is using trial and improvement to find a solution to the equation

$$x^3 + 2x = 60$$

The table shows her first two tries.
Continue the table to find a solution to the equation.

x	$x^3 + 2x$	Comment
3	33	too small
4	72	too big

Give your answer correct to 1 decimal place.

Answer $x = \dots\dots\dots$
(Total 3 marks)

2. Gary is using trial and improvement to find a solution to the equation $x^3 - 5x = 56$.
This table shows his first two trials.

x	$x^3 - 5x$	Comment
4	44	Too small
5	100	Too big

Continue the table to find a solution to the equation.
Give your answer to 1 decimal place.

Answer $x = \dots\dots\dots$
(Total 3 marks)

3. Find, using trial and improvement, an exact solution of

$$3x^2 - 2x = 96$$

x	$3x^2 - 2x$	Comment
1	1	Too small

Answer $x = \dots\dots\dots$

(Total 3 marks)

4. Dario is using trial and improvement to find a solution to the equation

$$x + \frac{1}{x} = 5$$

The table shows his first trial.

x	$x + \frac{1}{x}$	Comment
4	4.25	Too low

Continue the table to find a solution to the equation.
Give your answer to 1 decimal place.

Answer $x = \dots\dots\dots$

(Total 4 marks)

5. A solution of the equation $x^3 - 8x = 110$ lies between $x = 5$ and $x = 6$.

Use trial and improvement to find this solution.
Give your answer to one decimal place.

.....

.....

.....

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.....

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.....

.....

.....

.....

.....

Answer $x =$

(Total 3 marks)

6. Kate and Lee are working out this question.

A solution of the equation $x^3 + x = 700$ lies between 8 and 9.
Use trial and improvement to find this solution, correct to one decimal place.

Kate's answer is 8.8

Lee's answer is 8.9

Which answer is correct?

You **must** show all your working.

.....

.....

.....

.....

.....

.....

.....

.....

.....

Answer $x =$

(Total 3 marks)

Success:

Target: