Equations

Name: _____

1 Write the inverse operation for each of the following.

(a) -9
(b) $+31$
(c) $\div 11$
(d) $\times 15$
(e) $+84.07$
(f) $\div \frac{1}{3}$

2 Draw a flow chart to represent each of these puzzles and then solve each puzzle by backtracking.

I am thinking of a number —

(a) when I multiply it by 4 and then subtract 9 the answer is 23

(b) when I divide it by 5 and then add 17 the answer is 29

(c) when I add 4 to it and then multiply by 2 the answer is 20

(d) when I subtract 23 from it and then divide by 3 the answer is 10.

3 Draw a flow chart and use backtracking to find the solution to the following equations.

(a) $2m - 9 = 21$

(b) $18k + 11 = 65$

(c) $5h + 29 = 64$

(d) $8w - 14 = 42$

4 Solve these equations by backtracking.

(a) $9(a+4)=54$

(b) $7(d+8)=77$

(c) $22(v-6)=110$

(d) $3(2k-4)=36$

5 Solve these equations by backtracking.

(a) $\frac{k}{4}-8=1$

(b) $\frac{t}{7}+13=25$

(c) $\frac{m-9}{5}=3$

(d) $\frac{f+17}{9}=10$

6 Simplify the expressions and then solve the equations.

(a) $5t + 90 - 3t - 24 = 100$

(b) $25 + 9y - 7 + 12y = 81$

(c) $32 + 17g - 12 - 5g = 80$

(d) $4c + 9c + 13 + 5 = 70$

7 Determine whether each of these statements is true or false.

(a) $k = 11$ is the solution to $18 - k = 7$

(b) $h = 5$ is the solution to $34 - h = 30$

(c) $p = 9$ is the solution to $5p - 2 = 47$

(d) $y = 8$ is the solution to $\frac{y + 10}{3} = 6$

8 Complete the table below to find the value of $3(4d - 2)$ when $d = 1, 2, 3, 4, 5, 6$.

d	1	2	3	4	5	6
$3(4d-2)$						

(a) What is the solution to $3(4d - 2) = 54$?

(b) What is the solution to $3(4d - 2) = 30$?

9 Complete this table.

k	$3k + 7$	$6k - 5$
1		
2		
3		
4		
5		
6		
7		

What is the solution to $3k + 7 = 6k - 5$?

10 Use guess, check and improve to solve the equation $5t - 8 = 4t + 7$.

Guess	Check		Improve
t	$5t - 8$	$4t + 7$	

Equations Name: _____

1 Write an equation to represent each of these puzzles.
I am thinking of a number —
(a) when I add 5 to it the answer is 9
(b) when I multiply it by 14 the answer is 187
(c) when I divide it by 4 the answer is 42
(d) when I subtract 13 from it the answer is 90.

2 Solve the following equations by drawing a flow chart and using backtracking.
(a) $2y-3=15$

(b) $4(8a+4)=48$

(c) $\frac{2m-6}{2}=26$

3 Complete the table below to find the value of $5n-3$ when $n = 1, 2, 3, 4, 5$.

n	1	2	3	4	5
$5n-3$					

(a) For what value of n does $5n-3=22$?

(b) For what value of n does $5n-3=2$?

(c) What is the solution to $5n-3=7$?

4 State whether the following solutions to these equations are true or false.
(a) $m = 4$ is the solution to $3m+9=5m-1$
(b) $h = 8$ is the solution to $7h=5h+16$
(c) $y = 12$ is the solution to $9y-4=8y+8$
(d) $u = 7$ is the solution to $4u-9=2u+5$

5 Use guess, check and improve to find two numbers whose sum is 47 and product is 132.

Guess Sum	Check Product	Improve

6 Use guess, check and improve to find two numbers whose sum is 135 and product is 4136.

Guess Sum	Check Product	Improve

7 If m is a whole number, write down the value of:
(a) the number which is eight more than m
(b) the number which is five less than m
(c) the number which is three times as large as m
(d) the number which is one fifth of m
(e) the number of weeks in m years.

8 Therese is eight years younger than Sian. If the sum of their ages is 34, how old is Therese?

9 In one week James worked 22 hours, in the second week 30 hours, in the third week m hours and in the fourth week 16 hours. Over the four weeks James has averaged 24 hours of work each week.

(a) Write an expression that shows that the average of 22, 30, m and 16 is 24.

(b) Use a flow chart and backtracking to solve this equation.

(c) How many hours did James work in the third week?

10 The perimeter of this rectangular block of land is 82 cm. What is the width of the block?