Answers for Y6 Maths (wb 15.06.20)

Morning Mental Maths

Monday	Tuesday	Wednesday	Thursday	Friday
1. 18.43	11. 29.57	21. 74.871	31. 274.81	41. 623.39
2. 11	12. 8	22. 7	32. 9	42. 12
3. 720	13. 41	23. 9600	33. 22	43. 70
4. 0.45	14. 0.2	24. 71%	34. 0.45	44. They are the same!
5. 4	15. 12	25. 14	35. 36	45. 25
6. 54/100 or 27/50	16. 5/100 or 1/20	26. 67/100	36. 83/100	46. 9/100
7. £5.09	17. £3.97	27. £26.36	37. £2.66	47. £4.01
8. 11°C	18. 14°C	28. 4°C	38. 3°C	48. -9°C
9. 31	19. 77	29. 154	39. 530	49. 13
10. 6	20. 5	30. 9	40. 11	50. 8

Monday

Answers provided at end of download

Tuesday

1   Use the function machine to complete the table.

input → × 5 → + 2 → output

Input	1	2	3	5	10	50
Output	7	12	17	27	52	252

2 Here is the same function machine with the steps in the reverse order.

input $\rightarrow$ [ ] $\rightarrow$ + 2 $\rightarrow$ × 5 $\rightarrow$ [ ] output

Teddy: The outputs will be the same.

Jack: The outputs will be different.

Explain to a partner who you think is correct.
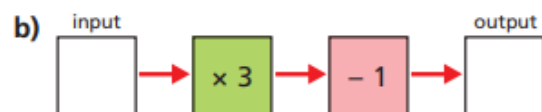
Use the function machine to complete the table.

Input	1	2	3	5	10	50
Output	15	20	25	35	60	260

Who is correct? ___Jack___

3 Work out the missing outputs and inputs.

a)

input			output
1	× 5	+ 4	9
5			29
8			44
7			39

b)

input			output
3	× 5	− 4	11
4			16
20			96
11			51
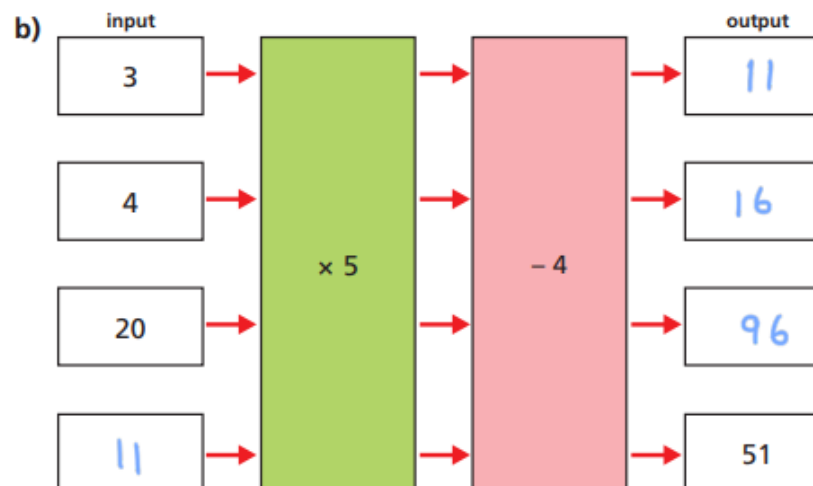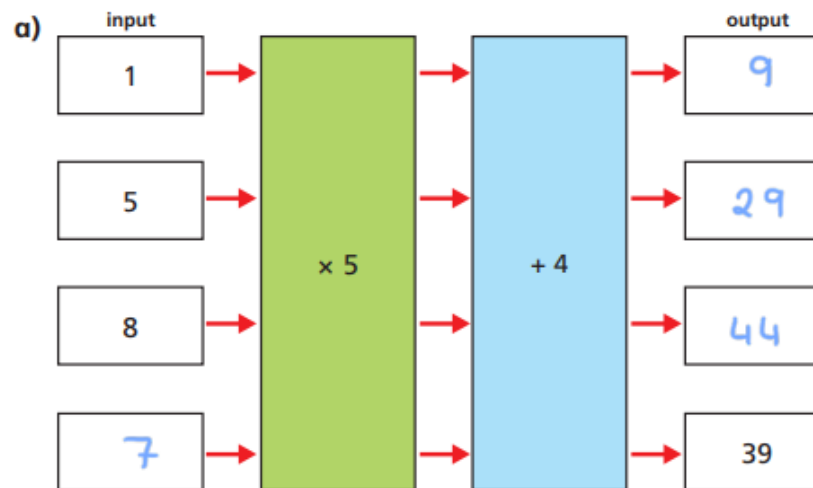
4 Tick the pairs of function machines that will give the same outputs for a given input.

a)

input → + 3 → + 4 → output

input → + 4 → + 3 → output

✓

b)

input → × 3 → − 1 → output

input → − 1 → × 3 → output

☐

c)

input → × 10 → × 2 → output

input → × 2 → × 10 → output

✓

6 Here is a function machine.

input → − 3 → × 4 → output
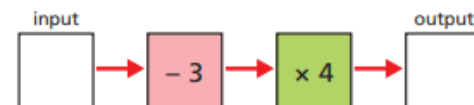
a) Complete the table.

Input	10	3	13	73
Output	28	0	40	280

b) Rosie puts a number into the machine and she gets out the same number.

Work out Rosie's number.

4

7 Mr Hall and Mrs Rose order some photos online.

Order **photos** online
Photos 20p each
Delivery £1.25

a) Mr Hall orders 16 photos.

How much does he pay?

£4·45

b) Mrs Rose pays £6.05

How many photos did she order?

24

Wednesday

1 Tommy uses multilink cubes to represent an unknown number and base ten ones to represent 1

 = x = 1
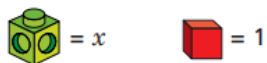
Write algebraic expressions to describe the sets of cubes.

The first one has been done for you.

a) $2x + 3$

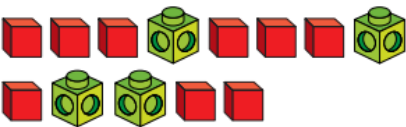b) $3x + 5$

c) $3x$

d) $x + 3$

e) $2x + 5$

f) $5x + 2$

g) $2x + 6$

h) $4x + 9$

2 Use Tommy's method to represent these expressions.

a) $x + 2$ c) $3x + 1$

b) $2x$ d) $x + 6$

Compare answers with a partner.

3 Use cubes to help you simplify the following expressions.

The first one has been done for you.

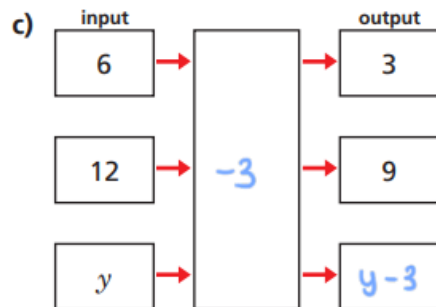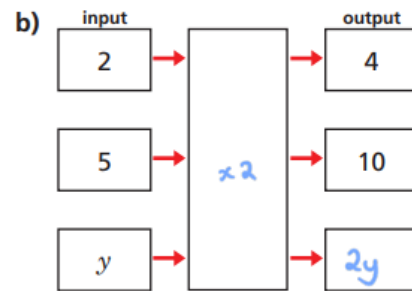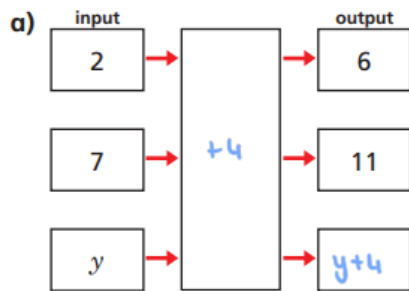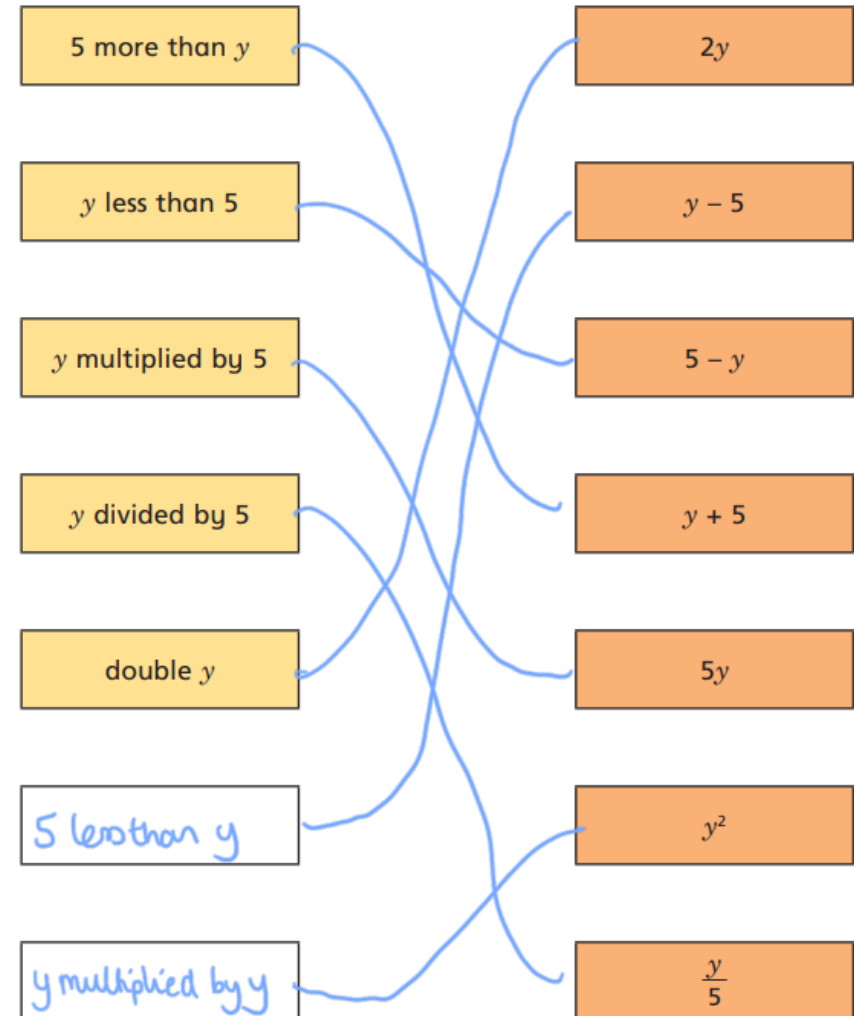a) $2y + 5 + y$

    $3y + 5$

b) $3a + 2 + a + a$

    $5a + 2$

c) $6p + 2 - 2p$

    $4p + 2$

d) $m + 4 + 3m - 3$

$4m + 1$

4 Complete the function machines.
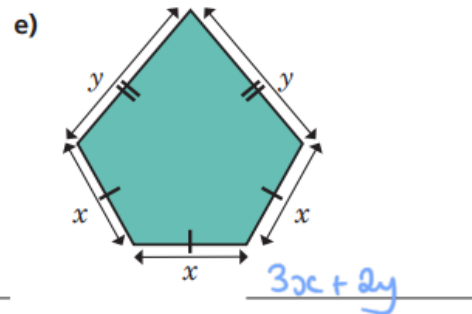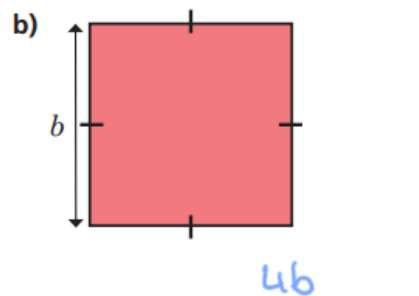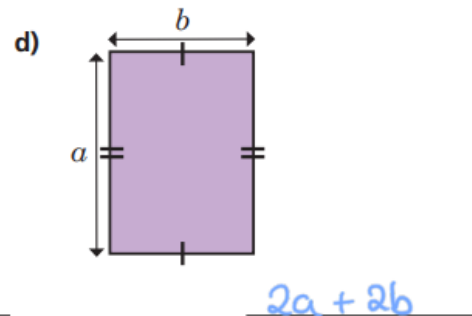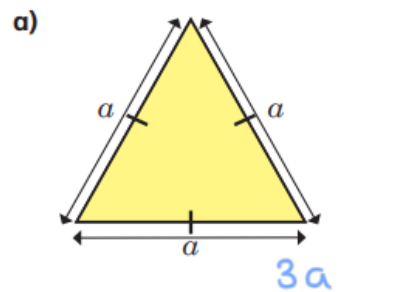
a)

input		output
2	→ +4 →	6
7	→ +4 →	11
y	→ →	$y+4$

b)

input		output
2	→ ×2 →	4
5	→ ×2 →	10
y	→ →	$2y$

c)

input		output
6	→ −3 →	3
12	→ −3 →	9
y	→ →	$y-3$

d)

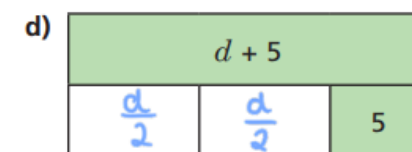| input		output
30	→ ÷10 →	3
50	→ ÷10 →	5
y	→ →	$\frac{y}{10}$
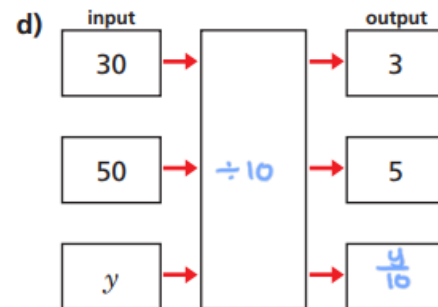
5 Match each statement to the equivalent algebraic expression.
Write the missing statements.

5 more than y		$2y$
y less than 5		$y-5$
y multiplied by 5		$5-y$
y divided by 5		$y+5$
double y		$5y$
5 less than y		y^2
y multiplied by y		$\frac{y}{5}$

6 Write an algebraic expression to represent the perimeter of each shape.

a)

$3a$

b)

$4b$

c)

$6x$

d)

$2a + 2b$

e)

$3x + 2y$
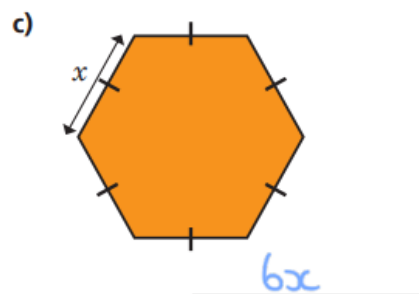
7 Complete the bar models.
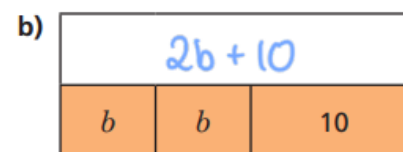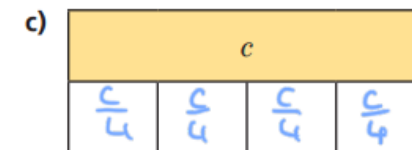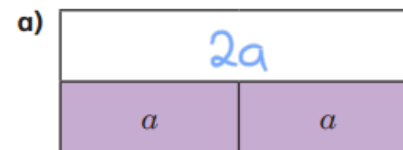
a)

$2a$	
a	a

b)

$2b + 10$		
b	b	10

c)

c			
$\frac{c}{4}$	$\frac{c}{4}$	$\frac{c}{4}$	$\frac{c}{4}$

d)

$d + 5$		
$\frac{d}{2}$	$\frac{d}{2}$	5

Thursday

1

⬠ = 4   ⚪ = 5

Use the given facts to work out the calculations.

a) ⬠ + ⬠ + ⚪

b) ⬠ + ⬠ − ⚪   **13**

c) ⚪ + ⚪ + ⚪ + ⬠ + ⬠   **3**

23

2

△ = 12   ■ = 5

Use the given facts to work out the calculations.

a) △ − ■

b) △ × ■   **7**

60

c) Create your own calculation that will be equal to 22

e.g.   △ + ☐ + ☐

3 If $x = 5$, write the values of the expressions in the corresponding grid.
The first one has been done for you.

$3x$	x^2	$2x - 5$
$4x + 2$	$\dfrac{x}{2}$	$2(x + 1)$
$7x$	$x + 9$	$x - 7$

15	25	5
22	2·5	12
35	14	−2

4 If $a = 10$ and $b = 6$, work out the values of the expressions.

a) $a + b =$ **16**

b) $a - b =$ **4**

c) $2a =$ **20**

d) $2a + b =$ **26**

e) $3a - 17 =$ **13**

f) $2(a - b) =$ **8**

6

It does not matter what p and q are, $p + q$ and $q + p$ will always give the same answer.

Mo

Do you agree with Mo? __yes__

Explain your answer.

__Addition   is   commutative__

_____

_____

7

$$m = 7 \quad n = 5$$

Write >, < or = to compare the expressions.

a) $2m$ $\bigodot{>}$ 10

b) $n - 1$ $\bigodot{<}$ 5

c) $2n + m$ $\bigodot{<}$ $2m + n$

d) $7n$ $\bigodot{=}$ $5m$

8

$$a = 10$$

Write the expressions in order, starting with the smallest value.

| $5a$ | $a + 5$ | $\dfrac{a}{5}$ | a^2 |

| $\dfrac{a}{5}$ | $a + 5$ | $5a$ | a^2 |

9

$$a = 15$$

Write three different algebraic expressions that give a value of 40

e.g.

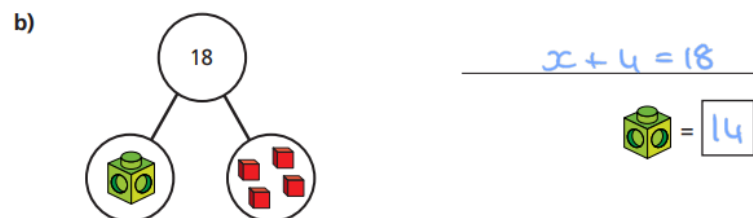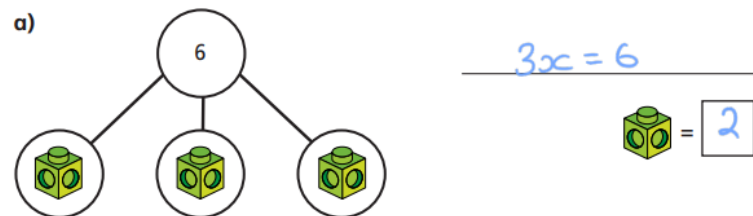__$2a + 10$__   __$3a - 5$__ $\dfrac{8a}{3}$

10 Complete the table.

x	$5x$	$5x - 1$
2	10	9
10	50	49
12	60	59
5	25	24
7	35	34
20	100	99

1 Write an equation for each part-whole model.

Work out the value of the multilink cube in each equation.

a)

$3x = 6$

$\square = 2$

b)

$x + 4 = 18$

$\square = 14$

2 There are some counters under the cup.

There are 10 counters in total.

a) If c is the number of counters under the cup, explain why
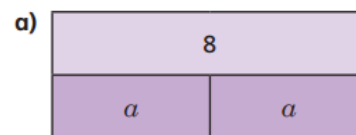$c + 6 = 10$

b) Work out the value of c. $c = 4$
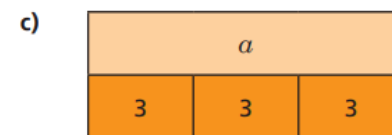
c) How many counters are under the cup? 4

3 Write algebraic equations to represent the bar models.
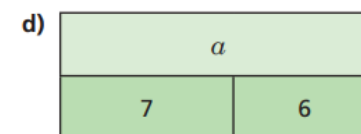
Find the value of a in each one.

a)

$a = 4$

c)

$a = 9$

b)

$a = 5$

d)

$a = 13$

4 Nijah is solving the equation $x - 8 = 20$

$x - 8 = 20$

$x = 20 - 8$

$x = 12$

What mistake has Nijah made?

She should have added 8 to 20

$x = 28$

5 Solve the equations.

a) $x + 7 = 20$

$$x = \boxed{13}$$

b) $10y = 80$

$$y = \boxed{8}$$

c) $4m = 22$

$$m = \boxed{5 \cdot 5}$$

d) $g - 3 = 15$

$$g = \boxed{18}$$

e) $32 = t - 5$

$$t = \boxed{37}$$

f) $\frac{u}{6} = 3$

$$u = \boxed{18}$$

6 Filip thinks of a number.

He subtracts 5 from his number.

He ends up with 10

Write an algebraic equation to represent Filip's problem.

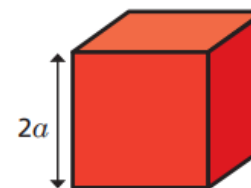$$\underline{x - 5 = 10}$$

Solve the equation to work out his number.

$$\boxed{15}$$

7 Dexter builds a tower.

Each block is $2a$ high.

He uses 7 blocks.
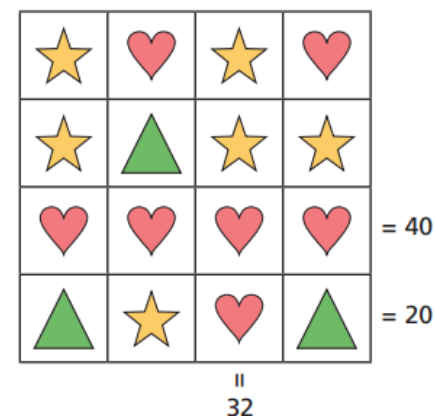
$2a$

The total height of his tower is 42 cm.

Write an equation to represent the height of Dexter's tower and find the value of a.

$$14a = 42 \qquad a = \boxed{3} \text{ cm}$$

8 Work out the value of each shape.

Write the equations that you solved to find the value of each shape.

★	♥	★	♥	
★	▲	★	★	
♥	♥	♥	♥	= 40
▲	★	♥	▲	= 20
		=32		

$$♥ = \boxed{10} \qquad ★ = \boxed{6} \qquad ▲ = \boxed{2}$$

Work out the missing total of each row and column.