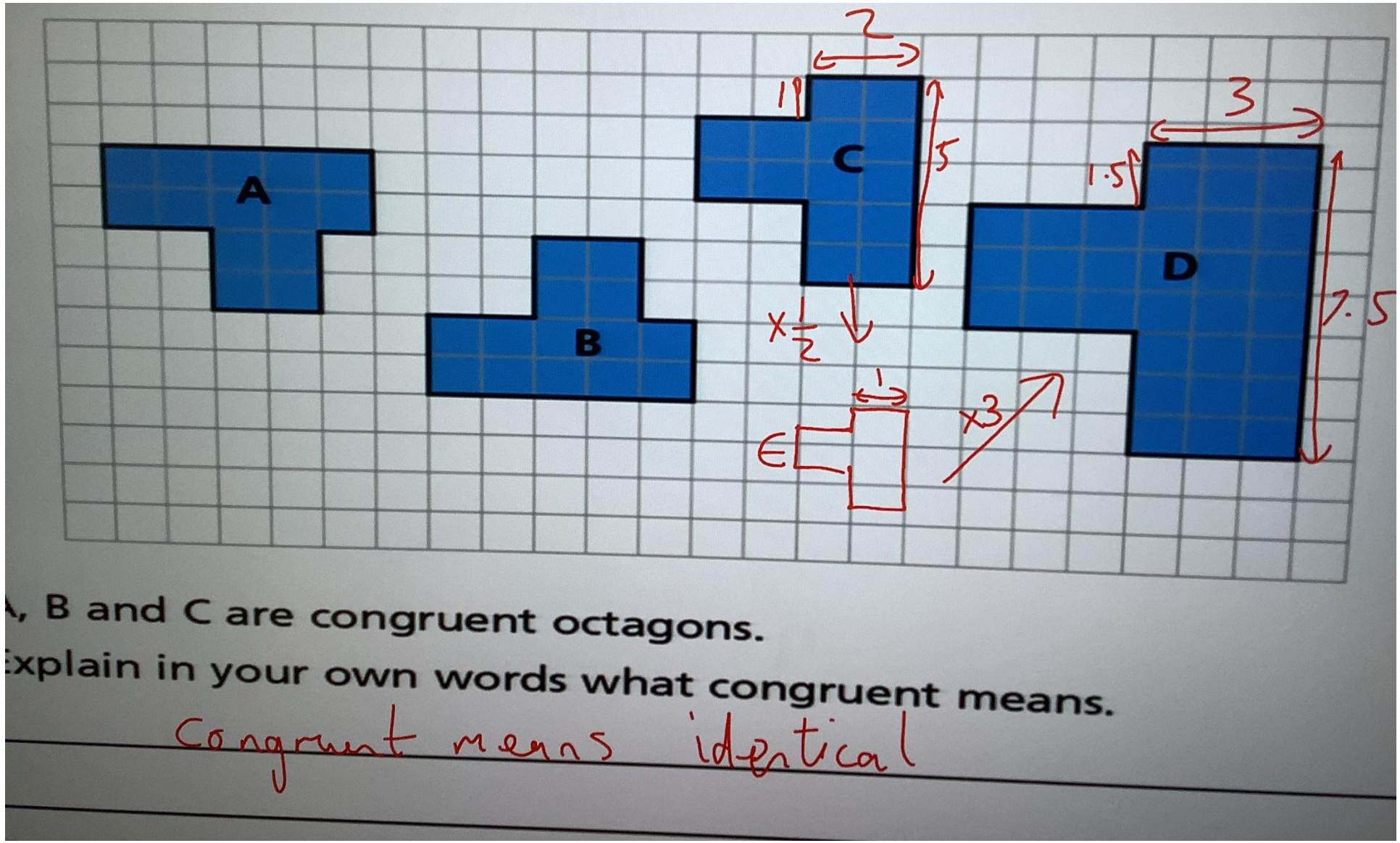


A, B and C are congruent octagons.

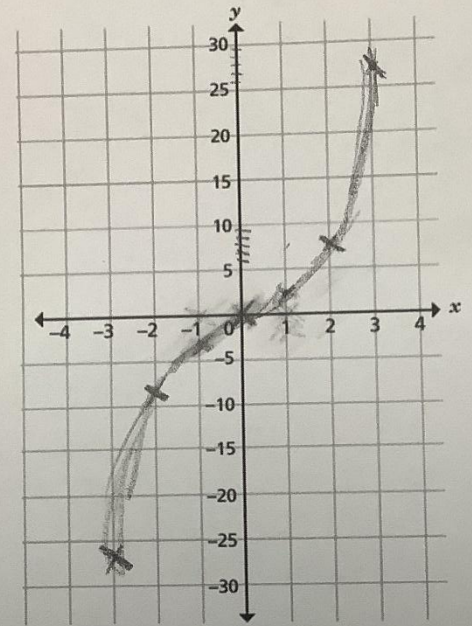
Explain in your own words what congruent means.

Congruent means identical

Here is a table of values for $y = x^3$.

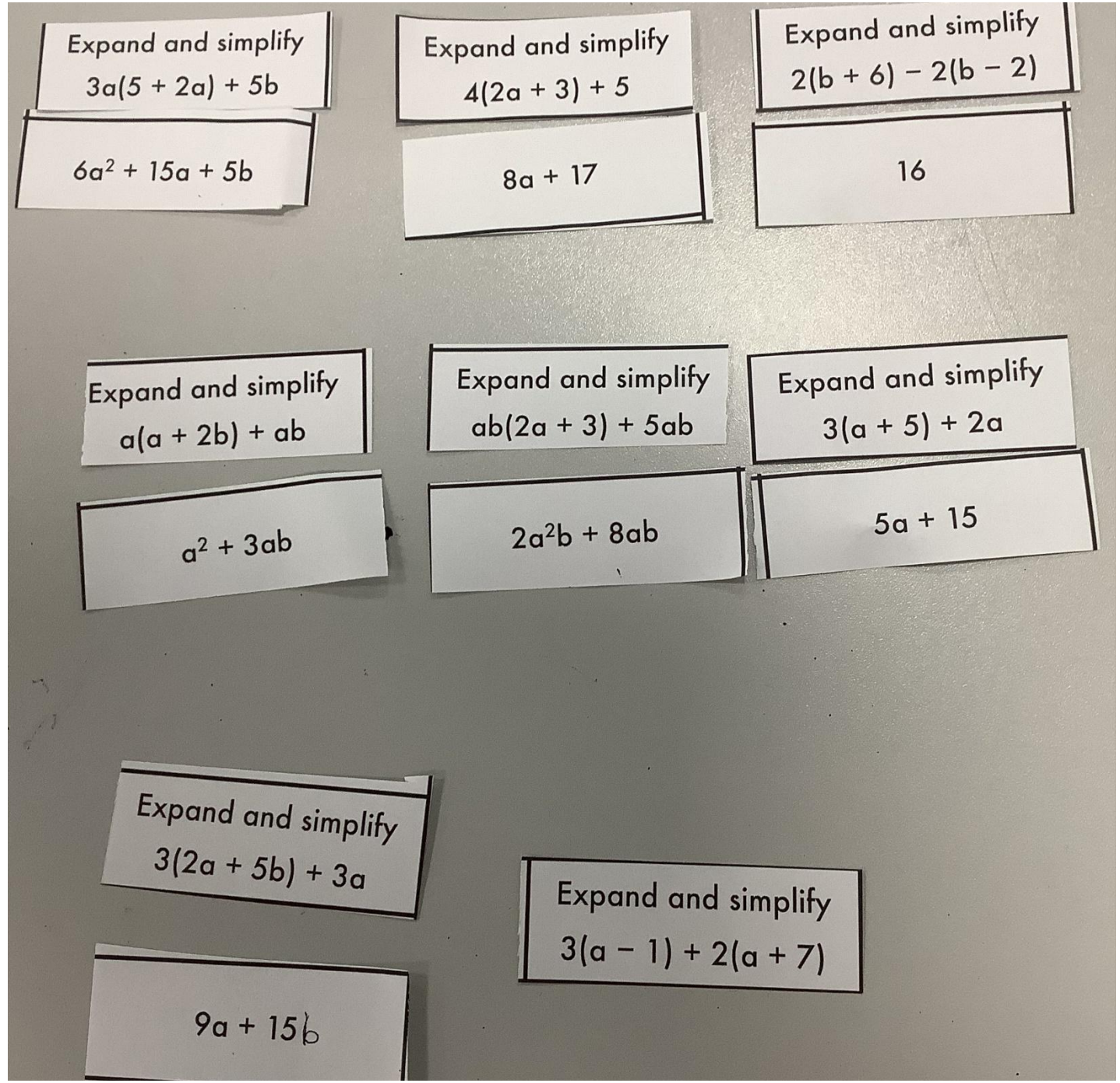
x	−3	−2	−1	0	1	2	3
y	-27	-8	-1	0	1	8	27

a) Complete the table of values and plot the curve $y = x^3$.



b) Explain why y is negative for negative values of x.

Because a negative multiplied by a Negative is positive then multiplying the positive by a Negative makes a Negative.


Expand and simplify
3a(5 + 2a) + 5b
6a² + 15a + 5b
Expand and simplify
4(2a + 3) + 5
8a + 17
Expand and simplify
2(b + 6) − 2(b − 2)
16
Expand and simplify
a(a + 2b) + ab
a² + 3ab
Expand and simplify
ab(2a + 3) + 5ab
2a²b + 8ab
Expand and simplify
3(a + 5) + 2a
5a + 15
Expand and simplify
3(2a + 5b) + 3a
9a + 15b
Expand and simplify
3(a − 1) + 2(a + 7)

14 A machine makes 15 boxes in 12 minutes.
The machine works continuously.

Work out how many boxes are made by this machine in 7 hours.

15 boxes every 12 min

15 - 12
15 - 24
15 - 36
15 - 48
15 - 60
} 5

1 hour = 15 x 5 = 75
15 x 5 = 75
15 x 5 = 75
15 x 5 = 75
15 x 5 = 75
15 x 5 = 75
} added all together = 525

525 .....

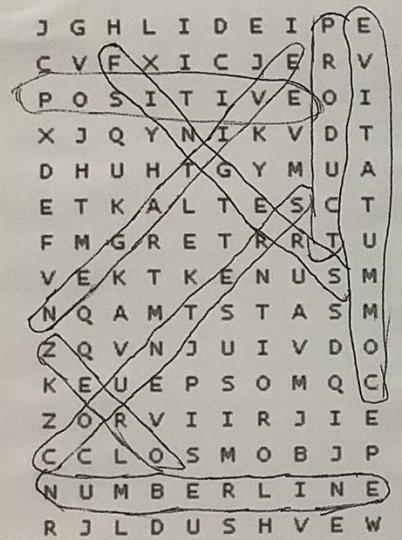
[4]

Literacy focus — retrieval

Task:

Find these words in the grid below:

~~positive~~ ~~negative~~
~~zero~~ ~~product~~
~~commutative~~



Challenge:

Can you find 3 things we can use to help us with directed number in the grid?

Adding directed numbers

6 + -2 = 4 ✓

+	0	0	0	0	0	0
-	0	0				

-3 + 7 = 4 ✓

	0	0	0	0	0	0	0
	0	0					

Q1. Use the counters to complete the calculations.

a) (1)(1)(1) ●●●●● 3 + -5 = -2 ✓

b) (1)(1)(1)(1)(1) ●●● 5 + -3 = 2 ✓

c) (1)(1) ●●●●●●● 2 + -7 = -5 ✓

d) (1)(1)(1)(1)(1) ●● -2 + 5 = 3 ✓

Q2. Draw the counters into the grid and use it to complete the calculations.

a) 2 + -7 = -5 ✓

+	0	0
-	0	0	0	0	0	0	0

c) -2 + 6 = 4 ✓

+	0	0	0	0	0	0
-	0	0				

b) -8 + 3 = -5 ✓

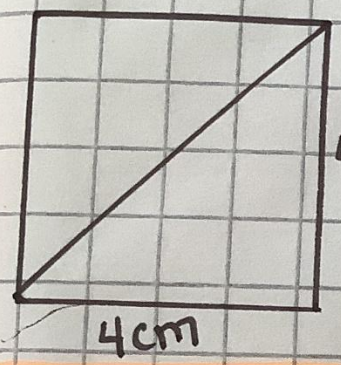
+	0	0	0
-	0	0	0	0	0	0	0	0

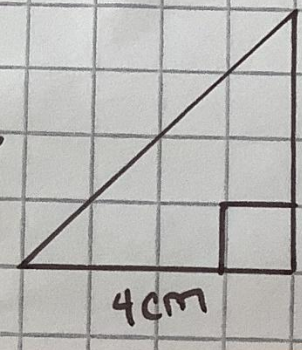
d) -4 + -3 = -1 ✗

+	0	0	0
-	0	0	0	0

Finished? Try the challenge question on the board!

e. Find the diagonal length of a square with side length 4cm





$a^2+b^2=c^2$

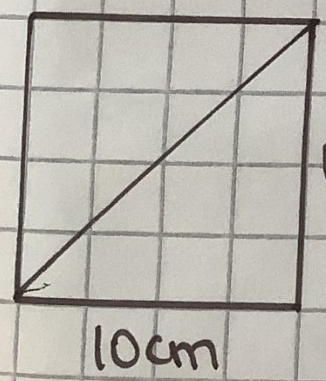
$4^2+4^2=c^2$

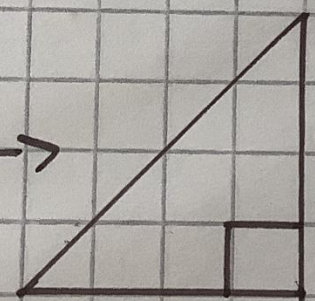
$16cm+16cm=c^2$

$32cm=c^2$

So: $c=\sqrt{32}=5.7cm$

f. A square has perimeter of 40cm. Work out the length of its diagonal.





$a^2+b^2=c^2$

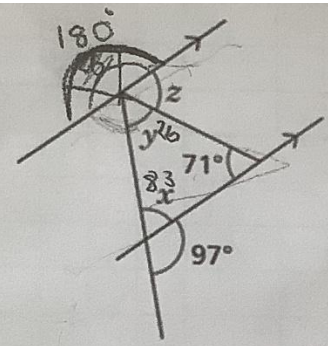
$10^2+10^2=c^2$

$100cm+100cm=c^2$

$200cm=c^2$

So: $c=\sqrt{200}=14.1cm$

Q1.



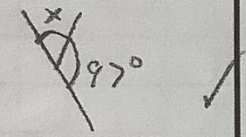
180
- 97
83

83
+ 71
154

180
- 154
026

a) Work out the angle marked x.

Basic graphic



Angle x = 83°

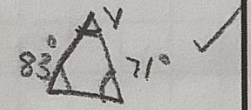
Because

angles on a straight line add to 180°.

180 - 97 = 83°

b) Work out the angle marked y.

Basic graphic



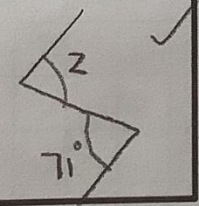
Angle y = 26°

Because

triangles add up to 180° and 83 + 71 = 154 and 180 - 154 = 26°

c) Work out the angle marked z.

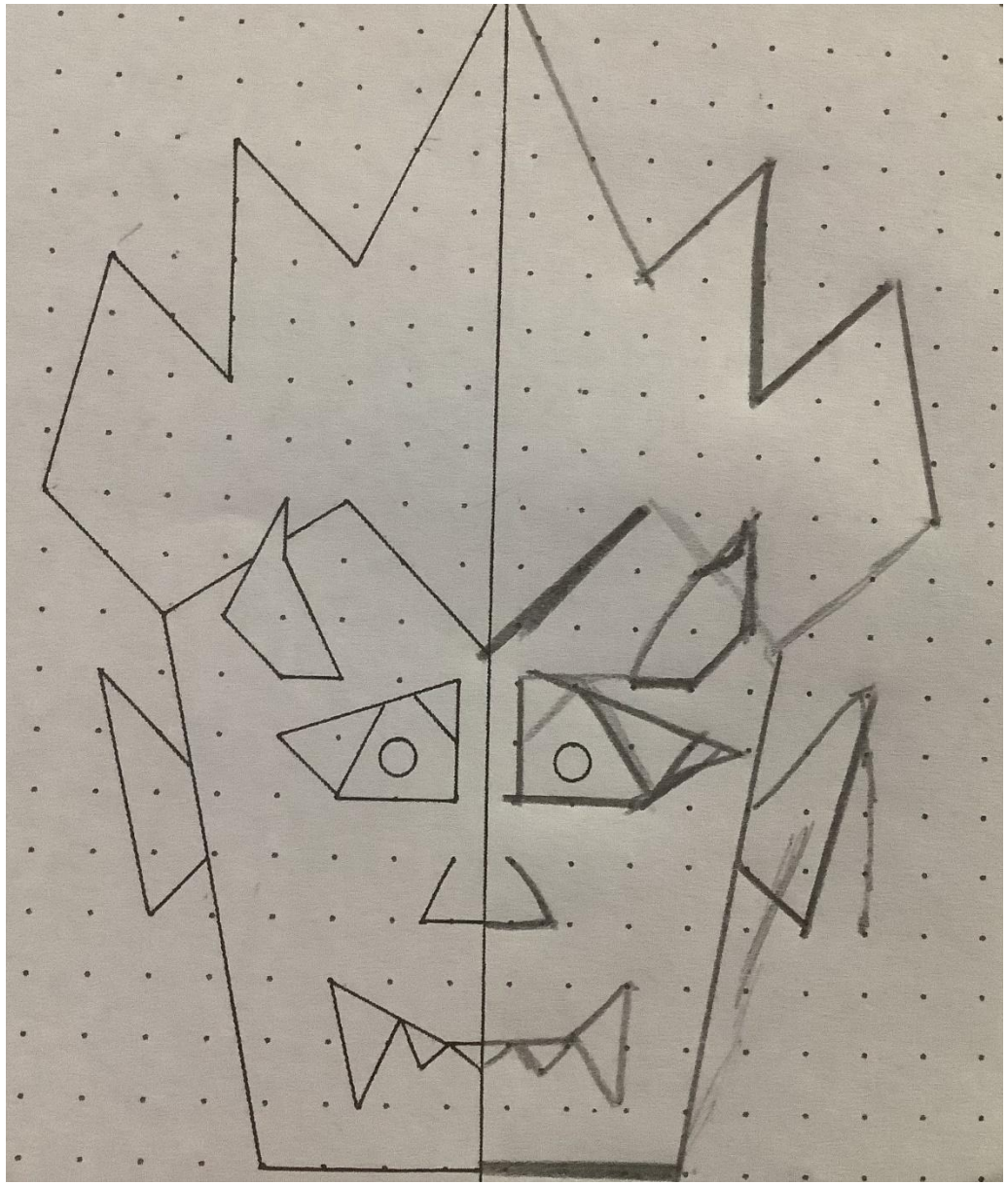
Basic graphic



Angle z = 71

Because

It is a corresponding angle which is equal on parallel lines.



Q2. Fill the blanks in each sum:

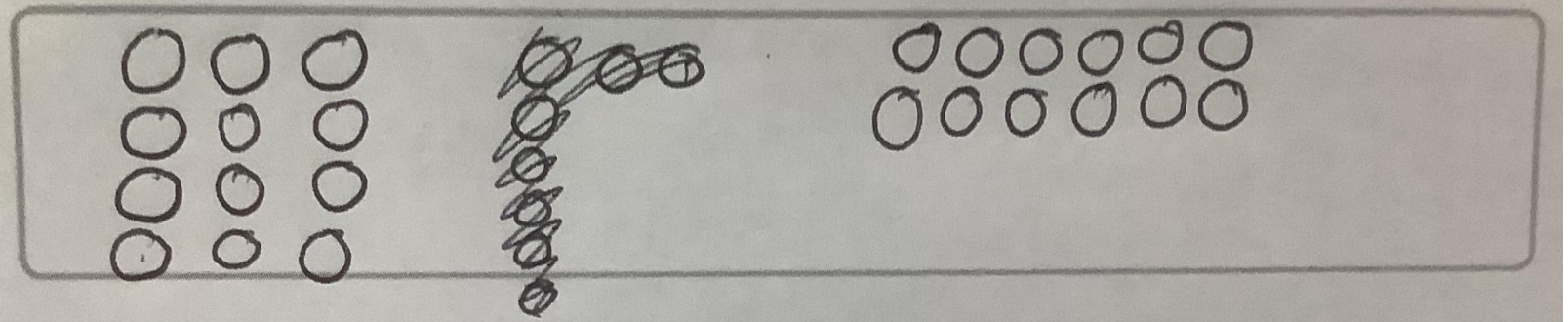
a) To find 15% of 670, do [670] x [0.15]

b) To increase 430 by 28%, do [1.28] x [430]

c) To find 82% of 230, do [0.82] x [230]

d) To decrease 975 by 32%, do [0.68] x [975]

c) Draw a different array that can be made from the same number of counters.



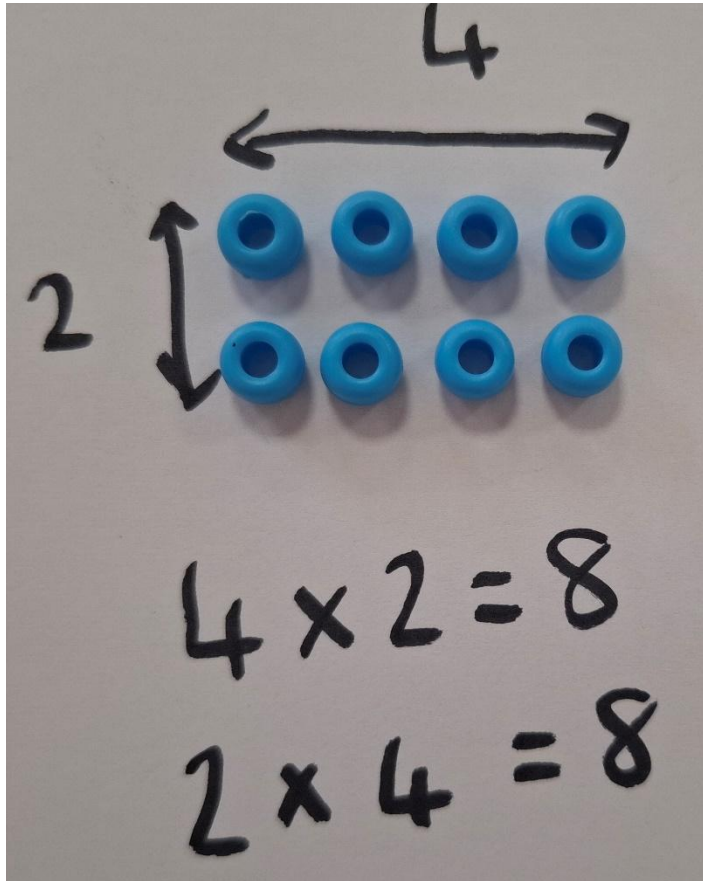
d) Complete the fact family for your array.

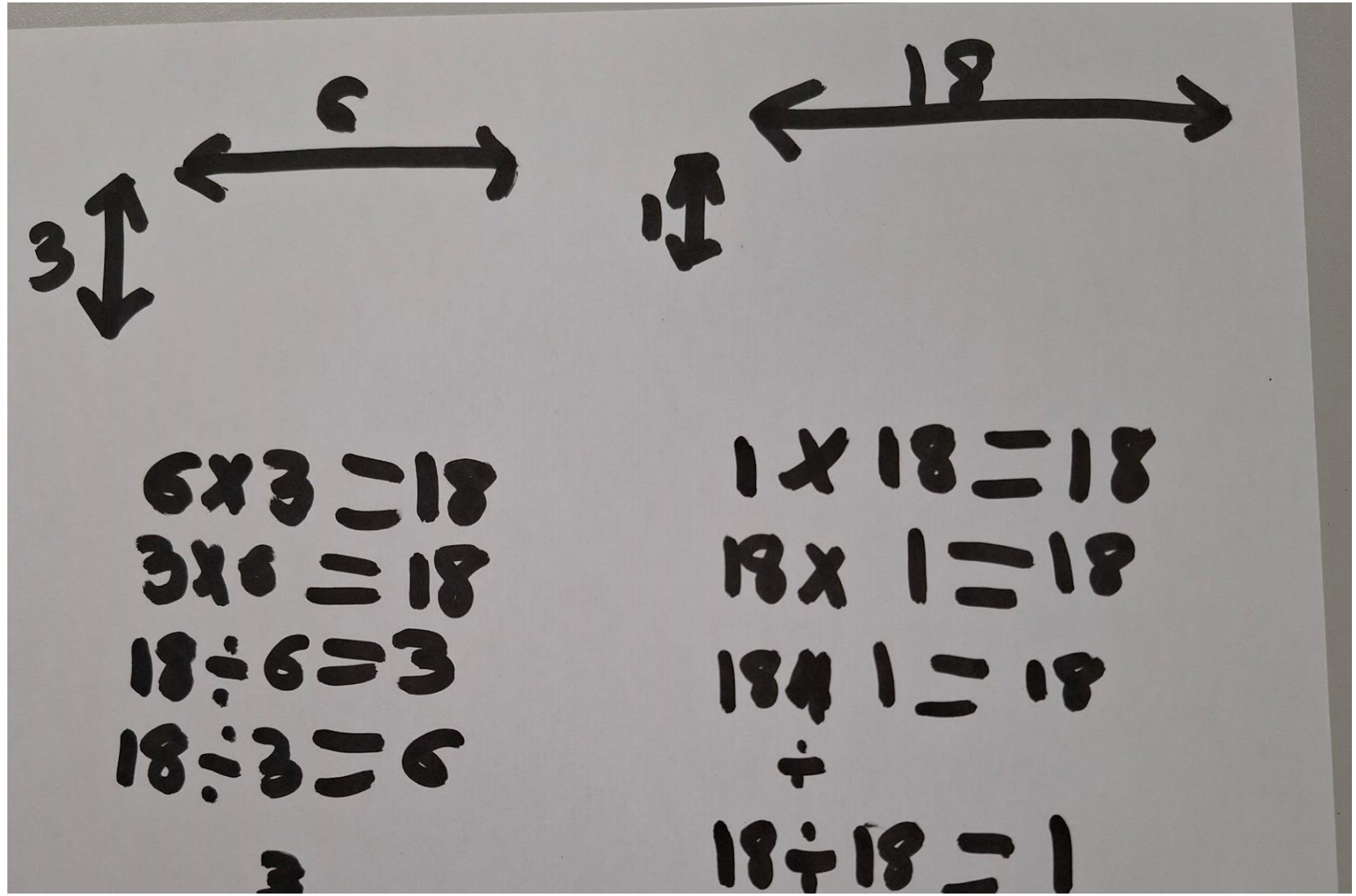
$6 \times 2 = 12$

$2 \times 6 = 12$

$12 \div 2 = 6$

$12 \div 6 = 2$


4
2
4 x 2 = 8
2 x 4 = 8


6
3
6 x 3 = 18
3 x 6 = 18
18 ÷ 6 = 3
18 ÷ 3 = 6
18
1
1 x 18 = 18
18 x 1 = 18
18 ÷ 1 = 18
÷
18 ÷ 18 = 1