

Big Maths Beat That!: Teacher Notes

SAFE Challenge 20			
	Step Location in the SAFE framework		Title of Step
	Progress Drive	Step No.	
Q1	Shape: Position & Direction	36	I can find missing coordinates for a variety of shapes (without drawing the shape)
Q2	Amounts: Amounts of Space	28	I can calculate volume using CLIC
Q3	Amounts: Amounts of Temperature	15	I can increase a temperature by a given amount (including through zero)
		16	I can decrease a temperature by a given amount (including through zero)
Q4	Amounts: Amounts of Turn	34	I can use all of my angle knowledge to find missing angles in lots of different contexts
Q5	Fractions: Fractions: Calculation	22	I can convert, simplify and find equivalent fractions ready for calculating... and calculate with them
Q6	Fractions: Fractions: Calculation	23	I can divide proper fractions by whole numbers
Q7	Fractions: Fractions: Calculation	24	I can turn fractions into decimals (not recurring)
Q8	Fractions: Fractions: Percentages	8	I can find percentages of any number
Q9	Explaining Data: Averages	10	I can find the median value for a set of data
Q10	Dangerous Maths: Algebra	18	I can use my understanding of the order of operations to carry out calculations

1

The coordinates of a square are:

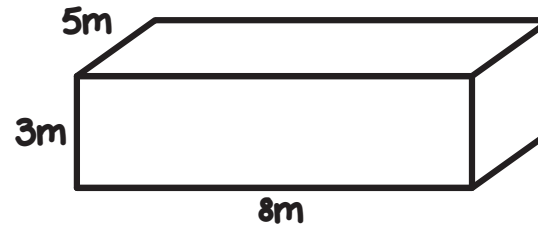
$a = (2, 2)$

$b = (4, 2)$

$c = (4, 4)$

$d = (\quad , \quad)$

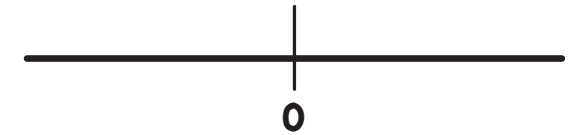
2



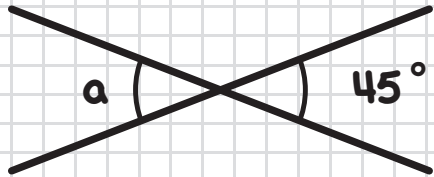
Volume = m³

3

$-4 + 5 =$



4



$a =$

5

$\frac{3}{4} - \frac{2}{6} =$

6

$\frac{3}{4} \div 2 =$

7

Write $\frac{3}{8}$ as a decimal

8

13% of 50 =

9

2, 16, 1, 1, 8, 3, 4

Mean Median Mode Range

10

$5 + 2 \times 10 =$

MY LAST SCORE?!

HAVE I BEAT THAT?!



1

The coordinates of a square are:

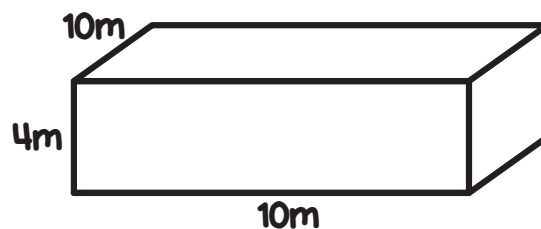
$a = (3, 2)$

$b = (3, 7)$

$c = (7, 7)$

$d = (\quad , \quad)$

2



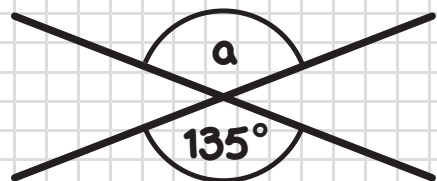
Volume = _____ m^3

3

$3 + 2 =$ _____



4



$a =$ _____

5

$\frac{2}{3} + \frac{1}{2} =$

6

$\frac{6}{9} \div 3 =$

7

Write $\frac{5}{8}$ as a decimal

8

24% of 75 = _____

9

5, 9, 1, 6, 5, 2, 7

Mean _____

Median _____

Mode _____

Range _____

10

$7 + 9 \div 3 =$ _____

MY LAST SCORE?!

HAVE I BEAT THAT?!



1

The coordinates of a square are:

$a = (1, 4)$

$b = (1, 6)$

$c = (3, 6)$

$d = (\quad , \quad)$

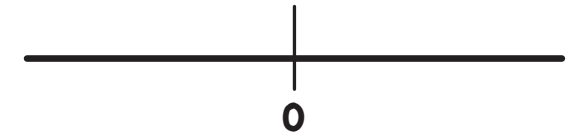
2



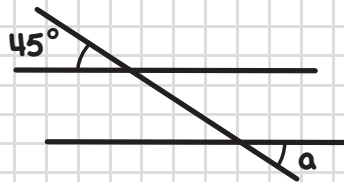
Volume = _____ m^3

3

$3 + -5 =$ _____



4



$a =$ _____

5

$\frac{2}{3} + \frac{1}{5} =$

6

$\frac{1}{3} \div 3 =$

7

Write $\frac{17}{8}$ as a decimal

8

$18\% \text{ of } 150 =$

9

5, 7, 2, 1, 2, 9, 2

Mean _____

Median _____

Mode _____

Range _____

10

$3 \times 5 - 4 =$

MY LAST SCORE?!

HAVE I BEAT THAT?!



1

The coordinates of a square are:

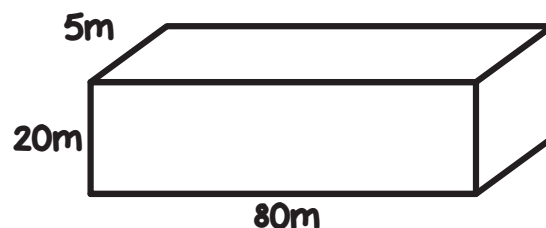
$a = (3, 3)$

$b = (3, 6)$

$c = (6, 6)$

$d = (\quad , \quad)$

2



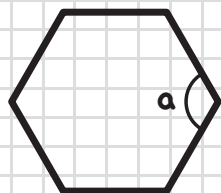
Volume = _____ m^3

3

$-2 + 4 =$ _____



4



$a =$ _____

5

$\frac{3}{4} + \frac{5}{6} =$

6

$\frac{4}{5} \div 4 =$

7

Write $\frac{1}{8}$ as a decimal

8

84% of 79 =

9

3, 8, 6, 9, 8, 7, 8

Mean _____

Median _____

Mode _____

Range _____

10

$12 \div 2 + 7 =$



MY LAST SCORE?!

HAVE I BEAT THAT?!

1

The coordinates of a square are:

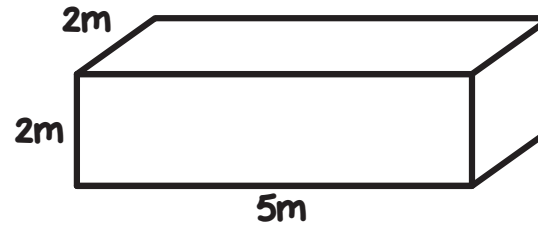
$a = (1, 1)$

$b = (1, 3)$

$c = (7, 3)$

$d = (\quad , \quad)$

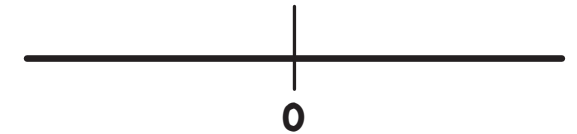
2



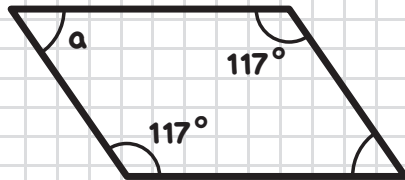
Volume = _____ m^3

3

$6 - 8 =$ _____



4



$a =$ _____

5

$\frac{3}{4} + \frac{2}{3} =$

6

$\frac{6}{8} \div 4 =$

7

Write $\frac{15}{8}$ as a decimal

8

90% of 257 =

9

3, 1, 1, 8, 2, 3, 3

Mean _____

Median _____

Mode _____

Range _____

10

$3 - 2 \times 9 =$



MY LAST SCORE?!

HAVE I BEAT THAT?!

1

The coordinates of a square are:

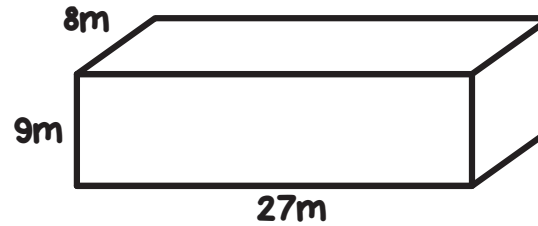
$a = (5, 2)$

$b = (5, 4)$

$c = (7, 4)$

$d = (\quad , \quad)$

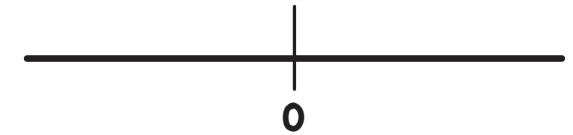
2



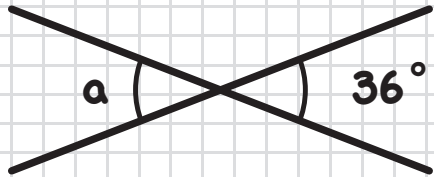
Volume = _____ m^3

3

$-2 - 2 =$ _____



4



$a =$ _____

5

$\frac{5}{7} + \frac{7}{8} =$

6

$\frac{6}{10} \div 2 =$

7

Write $\frac{7}{8}$ as a decimal

8

87% of 175 =

9

9, 9, 2, 6, 4, 5, 7

Mean _____

Median _____

Mode _____

Range _____

10

$6 + 3 - 3 =$

MY LAST SCORE?!

HAVE I BEAT THAT?!



1

The coordinates of a square are:

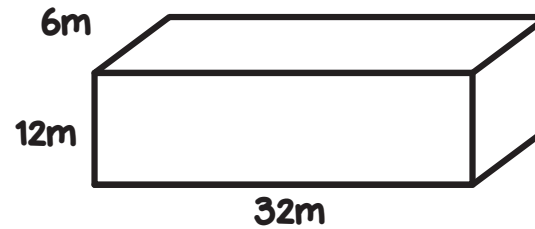
$a = (4, 1)$

$b = (4, 5)$

$c = (8, 5)$

$d = (\quad , \quad)$

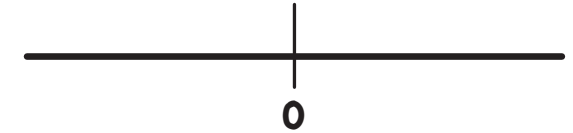
2



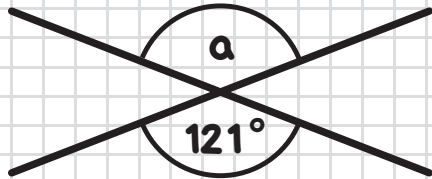
Volume = _____ m^3

3

$1 + 4 =$ _____



4



$a =$ _____

5

$\frac{3}{9} + \frac{3}{4} =$

6

$\frac{7}{8} \div 5 =$

7

Write $\frac{3}{8}$ as a decimal

8

28% of 305 =

9

2, 7, 3, 5, 6, 10, 2

Mean _____

Median _____

Mode _____

Range _____

10

$15 \div 3 \times 7 =$



MY LAST SCORE?!

HAVE I BEAT THAT?!

1

The coordinates of a square are:

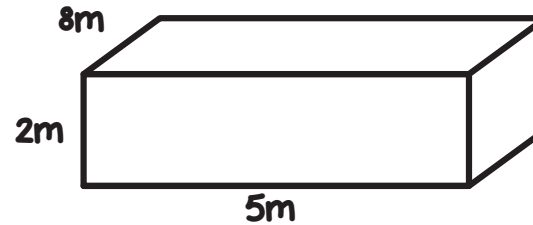
$a = (5, 5)$

$b = (5, 8)$

$c = (8, 8)$

$d = (\quad , \quad)$

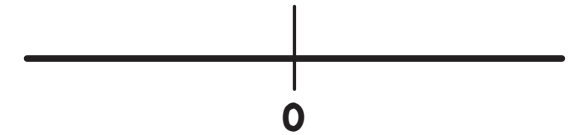
2



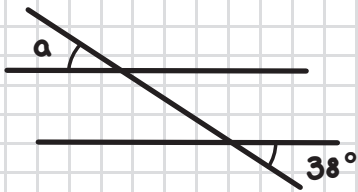
Volume = $\underline{\hspace{2cm}}$ m³

3

$2 - 5 = \underline{\hspace{2cm}}$



4



$a = \underline{\hspace{2cm}}$

5

$\frac{6}{7} + \frac{2}{3} =$

6

$\frac{5}{6} \div 5 =$

7

Write $\frac{5}{8}$ as a decimal $\underline{\hspace{2cm}}$

8

39% of 90 =

9

5, 9, 4, 5, 2, 7, 3

Mean $\underline{\hspace{2cm}}$ Median $\underline{\hspace{2cm}}$ Mode $\underline{\hspace{2cm}}$ Range $\underline{\hspace{2cm}}$

10

$18 \div 6 - 2 =$

MY LAST SCORE?!

HAVE I BEAT THAT?!



1

The coordinates of a square are:

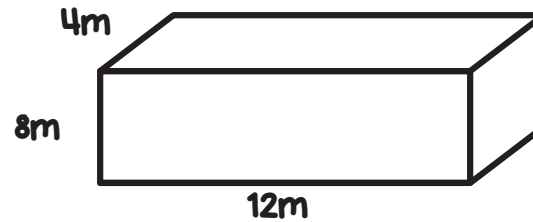
$$a = (2, 1)$$

$$b = (2, 2)$$

$$c = (6, 2)$$

$$d = (\quad , \quad)$$

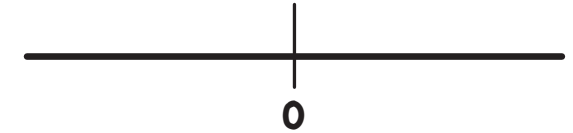
2



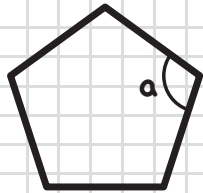
$$\text{Volume} = \underline{\hspace{2cm}} \text{ m}^3$$

3

$$-3 + 4 = \underline{\hspace{2cm}}$$



4



$$a = \underline{\hspace{2cm}}$$

5

$$\frac{3}{5} + \frac{2}{7} =$$

6

$$\frac{3}{8} \div 2 =$$

7

Write $\frac{7}{8}$ as a decimal

8

$$56\% \text{ of } 300 =$$

9

5, 7, 7, 2, 3, 7, 4

Mean _____

Median _____

Mode _____

Range _____

10

$$3 + 9 \times 3 =$$



MY LAST SCORE?!

HAVE I BEAT THAT?!

1

The coordinates of a square are:

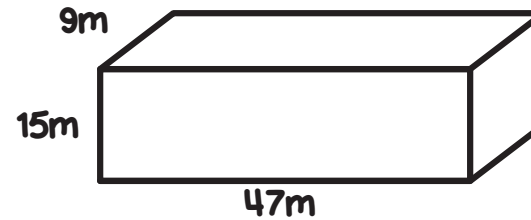
$a = (6, 6)$

$b = (6, 8)$

$c = (8, 8)$

$d = (\quad , \quad)$

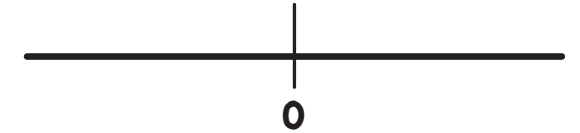
2



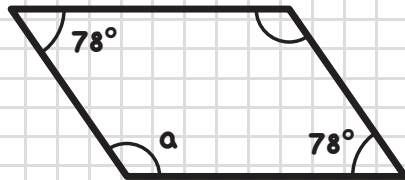
Volume = _____ m^3

3

$3 - 6 =$ _____



4



$a =$ _____

5

$\frac{2}{3} - \frac{1}{4} =$

6

$\frac{3}{7} \div 4 =$

7

Write $\frac{3}{8}$ as a decimal

8

34% of 95 =

9

3, 3, 3, 3, 5, 2, 9

Mean _____

Median _____

Mode _____

Range _____

10

$3 - 2 \times 8 =$



MY LAST SCORE?!

HAVE I BEAT THAT?!

ANSWERS

SAFE 20

SET: 1

/10

1

The coordinates of a square are:

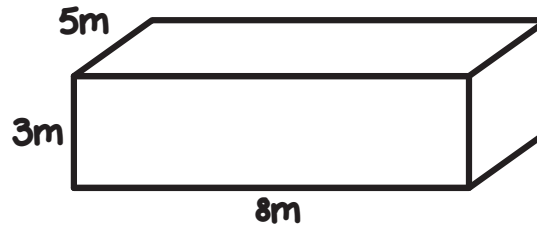
$$a = (2, 2)$$

$$b = (4, 2)$$

$$c = (4, 4)$$

$$d = (\mathbf{2} , \mathbf{4})$$

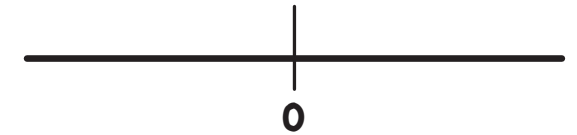
2



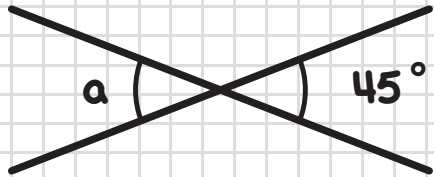
$$\text{Volume} = \underline{\mathbf{120}} \text{ m}^3$$

3

$$-4 + 5 = \underline{\mathbf{1}}$$



4



$$a = \underline{\mathbf{45^\circ}}$$

5

$$\frac{3}{4} - \frac{2}{6} = \underline{\mathbf{\frac{5}{12}}}$$

6

$$\frac{3}{4} \div 2 = \underline{\mathbf{\frac{3}{8}}}$$

7

Write $\frac{3}{8}$ as a decimal

$$\underline{\mathbf{0.375}}$$

8

13% of 50 =

$\mathbf{6.5}$

9

2, 16, 1, 1, 8, 3, 4

Mean $\underline{\mathbf{5}}$

Median $\underline{\mathbf{3}}$

Mode $\underline{\mathbf{1}}$

Range $\underline{\mathbf{15}}$

10

5 + 2 x 10 =

$\mathbf{25}$



MY LAST SCORE?!

HAVE I BEAT THAT?!



ANSWERS

SAFE 20

SET: 2

/10

1

The coordinates of a square are:

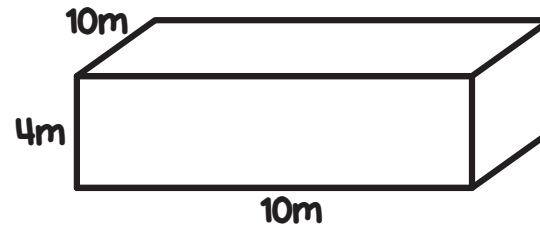
$$a = (3, 2)$$

$$b = (3, 7)$$

$$c = (7, 7)$$

$$d = (\mathbf{7} , \mathbf{2})$$

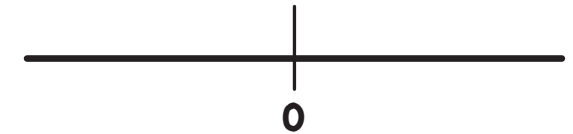
2



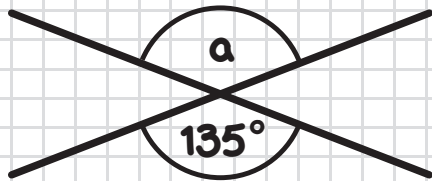
$$\text{Volume} = \underline{\mathbf{400}} \text{ m}^3$$

3

$$3 + 2 = \underline{\mathbf{5}}$$



4



$$a = \underline{\mathbf{135^\circ}}$$

5

$$\frac{2}{3} + \frac{1}{2} = \underline{\mathbf{\frac{7}{6}}}$$

6

$$\frac{6}{9} \div 3 = \underline{\mathbf{\frac{6}{27}}}$$

7

Write $\frac{5}{8}$ as a decimal

$$\underline{\mathbf{0.625}}$$

8

24% of 75 =

$\mathbf{18}$

9

5, 9, 1, 6, 5, 2, 7

Mean $\underline{\mathbf{5}}$

Median $\underline{\mathbf{5}}$

Mode $\underline{\mathbf{5}}$

Range $\underline{\mathbf{8}}$

10

$7 + 9 \div 3 =$

$\mathbf{10}$



MY LAST SCORE?!

HAVE I BEAT THAT?!



ANSWERS

SAFE 20

SET: 3

/10

1

The coordinates of a square are:

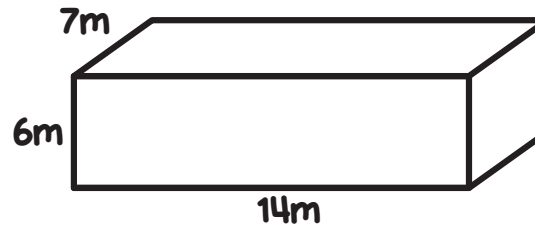
$$a = (1, 4)$$

$$b = (1, 6)$$

$$c = (3, 6)$$

$$d = (\mathbf{3} , \mathbf{4})$$

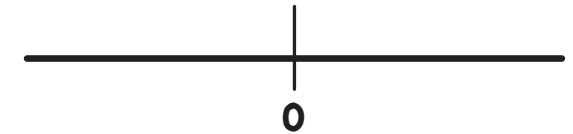
2



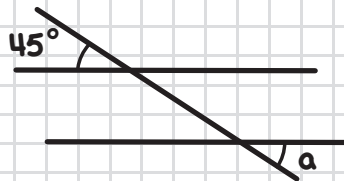
$$\text{Volume} = \underline{\mathbf{588}} \text{ m}^3$$

3

$$3 + -5 = \underline{\mathbf{-2}}$$



4



$$a = \underline{\mathbf{45^\circ}}$$

5

$$\frac{2}{3} + \frac{1}{5} = \underline{\mathbf{\frac{13}{15}}}$$

6

$$\frac{1}{3} \div 3 = \underline{\mathbf{\frac{1}{9}}}$$

7

Write $\frac{17}{8}$ as a decimal

$$\underline{\mathbf{2.125}}$$

8

18% of 150 =

$\mathbf{27}$

9

5, 7, 2, 1, 2, 9, 2

Mean $\underline{\mathbf{4}}$

Median $\underline{\mathbf{2}}$

Mode $\underline{\mathbf{2}}$

Range $\underline{\mathbf{8}}$

10

$3 \times 5 - 4 =$

$\mathbf{11}$



MY LAST SCORE?!

HAVE I BEAT THAT?!



ANSWERS

SAFE 20

SET: 4

/10

1

The coordinates of a square are:

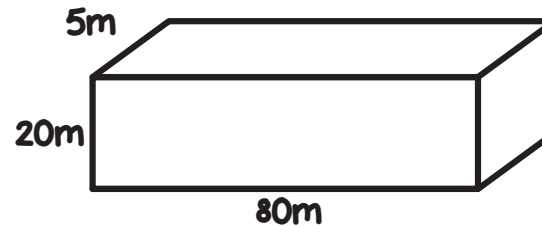
$$a = (3, 3)$$

$$b = (3, 6)$$

$$c = (6, 6)$$

$$d = (\mathbf{6} , \mathbf{3})$$

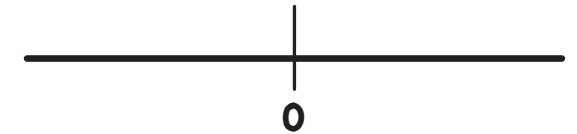
2



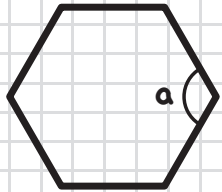
$$\text{Volume} = \underline{\mathbf{8000}} \text{ m}^3$$

3

$$-2 + 4 = \underline{\mathbf{2}}$$



4



$$a = \underline{\mathbf{120^\circ}}$$

5

$$\frac{3}{4} + \frac{5}{6} = \underline{\mathbf{\frac{19}{12}}}$$

6

$$\frac{4}{5} \div 4 = \underline{\mathbf{\frac{4}{20}}}$$

7

Write $\frac{1}{8}$ as a decimal

$$\underline{\mathbf{0.125}}$$

8

84% of 79 =

$$\mathbf{66.36}$$

9

3, 8, 6, 9, 8, 7, 8

Mean 7

Median 8

Mode 8

Range 6

10

12 ÷ 2 + 7 =

$$\mathbf{13}$$



MY LAST SCORE?!

HAVE I BEAT THAT?!



ANSWERS

SAFE 20

SET: 5

/10

1

The coordinates of a square are:

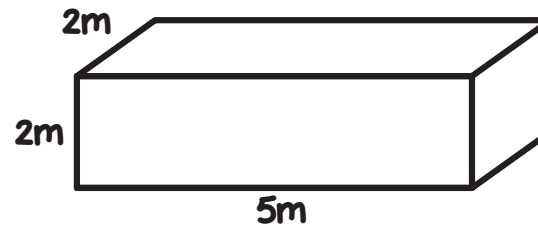
$$a = (1, 1)$$

$$b = (1, 3)$$

$$c = (7, 3)$$

$$d = (\mathbf{7} , \mathbf{1})$$

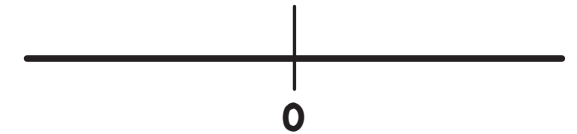
2



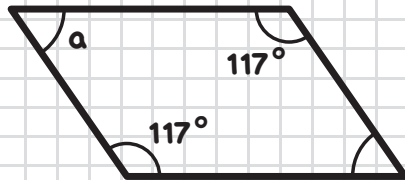
$$\text{Volume} = \underline{\mathbf{20}} \text{ m}^3$$

3

$$6 - 8 = \underline{\mathbf{-2}}$$



4



$$a = \underline{\mathbf{63^\circ}}$$

5

$$\frac{3}{4} + \frac{2}{3} = \underline{\mathbf{\frac{17}{12}}}$$

6

$$\frac{6}{8} \div 4 = \underline{\mathbf{\frac{6}{32}}}$$

7

Write $\frac{15}{8}$ as a decimal

$$\underline{\mathbf{1.875}}$$

8

90% of 257 =

$$\mathbf{231.3}$$

9

3, 1, 1, 8, 2, 3, 3

Mean $\underline{\mathbf{3}}$

Median $\underline{\mathbf{3}}$

Mode $\underline{\mathbf{3}}$

Range $\underline{\mathbf{7}}$

10

$3 - 2 \times 9 =$

$$\mathbf{-15}$$



MY LAST SCORE?!

HAVE I BEAT THAT?!

ANSWERS

SAFE 20

SET: 6

/10

1

The coordinates of a square are:

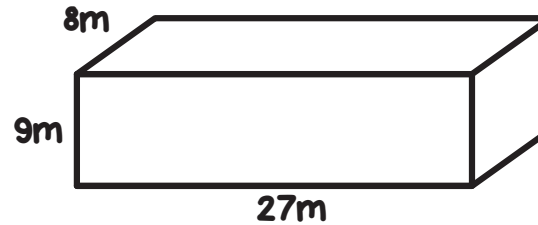
$$a = (5, 2)$$

$$b = (5, 4)$$

$$c = (7, 4)$$

$$d = (\mathbf{7} , \mathbf{2})$$

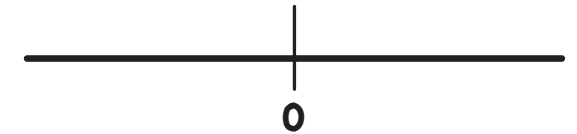
2



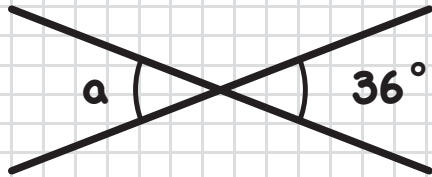
$$\text{Volume} = \underline{\mathbf{1944}} \text{ m}^3$$

3

$$-2 - 2 = \underline{\mathbf{-4}}$$



4



$$a = \underline{\mathbf{36^\circ}}$$

5

$$\frac{5}{7} + \frac{7}{8} = \underline{\mathbf{\frac{89}{56}}}$$

6

$$\frac{6}{10} \div 2 = \underline{\mathbf{\frac{6}{20}}}$$

7

Write $\frac{7}{8}$ as a decimal

$$\underline{\mathbf{0.875}}$$

8

87% of 175 =

$$\underline{\mathbf{152.25}}$$

9

9, 9, 2, 6, 4, 5, 7

Mean $\mathbf{6}$

Median $\mathbf{6}$

Mode $\mathbf{9}$

Range $\mathbf{7}$

10

6 + 3 - 3 =

$$\mathbf{6}$$



MY LAST SCORE?!

HAVE I BEAT THAT?!



ANSWERS

SAFE 20

SET: 7

/10

1

The coordinates of a square are:

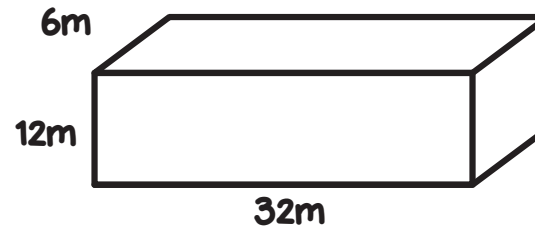
$$a = (4, 1)$$

$$b = (4, 5)$$

$$c = (8, 5)$$

$$d = (\mathbf{8} , \mathbf{1})$$

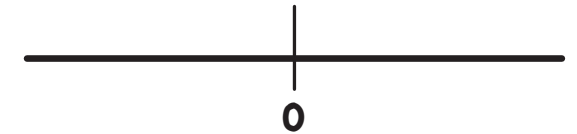
2



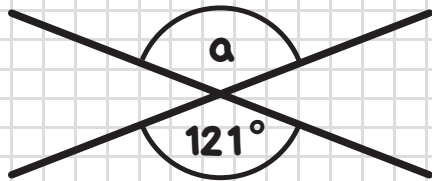
$$\text{Volume} = \underline{\mathbf{2304}} \text{ m}^3$$

3

$$1 + 4 = \underline{\mathbf{5}}$$



4



$$a = \underline{\mathbf{121^\circ}}$$

5

$$\frac{3}{9} + \frac{3}{4} = \underline{\mathbf{\frac{39}{36}}}$$

6

$$\frac{7}{8} \div 5 = \underline{\mathbf{\frac{7}{40}}}$$

7

Write $\frac{3}{8}$ as a decimal

$$\underline{\mathbf{0.375}}$$

8

28% of 305 =

$$\mathbf{85.4}$$

9

2, 7, 3, 5, 6, 10, 2

Mean 5

Median 5

Mode 2

Range 8

10

15 ÷ 3 x 7 =

$$\mathbf{35}$$



MY LAST SCORE?!

HAVE I BEAT THAT?!



ANSWERS

SAFE 20

SET: 8

/10

1

The coordinates of a square are:

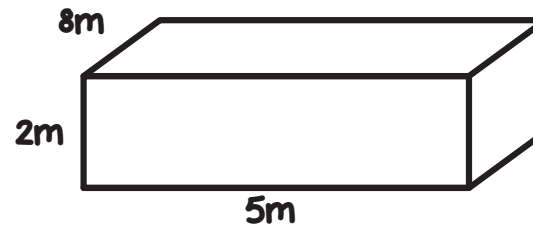
$$a = (5, 5)$$

$$b = (5, 8)$$

$$c = (8, 8)$$

$$d = (\mathbf{8} , \mathbf{5})$$

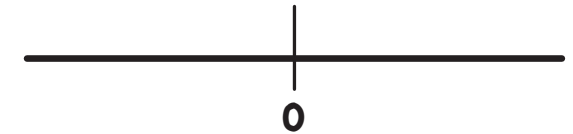
2



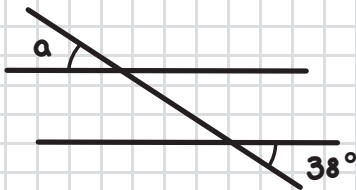
$$\text{Volume} = \underline{\mathbf{80}} \text{ m}^3$$

3

$$2 - 5 = \underline{\mathbf{-3}}$$



4



$$a = \underline{\mathbf{38^\circ}}$$

5

$$\frac{6}{7} + \frac{2}{3} = \underline{\mathbf{\frac{32}{21}}}$$

6

$$\frac{5}{6} \div 5 = \underline{\mathbf{\frac{5}{30}}}$$

7

Write $\frac{5}{8}$ as a decimal

$$\underline{\mathbf{0.625}}$$

8

39% of 90 =

$$\mathbf{35.1}$$

9

5, 9, 4, 5, 2, 7, 3

Mean $\underline{\mathbf{5}}$

Median $\underline{\mathbf{5}}$

Mode $\underline{\mathbf{5}}$

Range $\underline{\mathbf{7}}$

10

18 ÷ 6 - 2 =

$$\mathbf{1}$$



MY LAST SCORE?!

HAVE I BEAT THAT?!



ANSWERS

SAFE 20

SET: 9

/10

1

The coordinates of a square are:

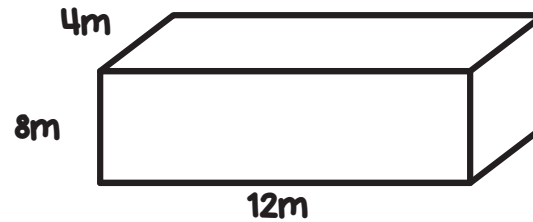
$$a = (2, 1)$$

$$b = (2, 2)$$

$$c = (6, 2)$$

$$d = (\mathbf{6} , \mathbf{1})$$

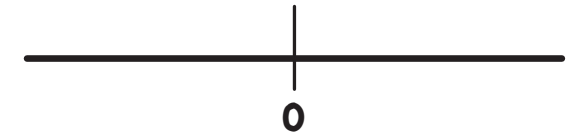
2



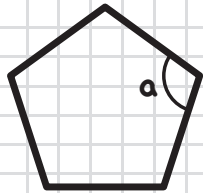
$$\text{Volume} = \underline{\mathbf{384}} \text{ m}^3$$

3

$$-3 + 4 = \underline{\mathbf{1}}$$



4



$$a = \underline{\mathbf{108^\circ}}$$

5

$$\frac{3}{5} + \frac{2}{7} = \underline{\mathbf{\frac{31}{35}}}$$

6

$$\frac{3}{8} \div 2 = \underline{\mathbf{\frac{3}{16}}}$$

7

Write $\frac{7}{8}$ as a decimal

$$\underline{\mathbf{0.875}}$$

8

56% of 300 =

$\mathbf{168}$

9

5, 7, 7, 2, 3, 7, 4

Mean $\underline{\mathbf{5}}$

Median $\underline{\mathbf{5}}$

Mode $\underline{\mathbf{7}}$

Range $\underline{\mathbf{5}}$

10

$3 + 9 \times 3 =$

$\mathbf{30}$



MY LAST SCORE?!

HAVE I BEAT THAT?!



ANSWERS

SAFE 20

SET: 10

/10

1

The coordinates of a square are:

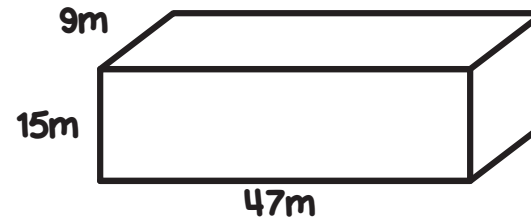
$$a = (6, 6)$$

$$b = (6, 8)$$

$$c = (8, 8)$$

$$d = (\mathbf{8} , \mathbf{6})$$

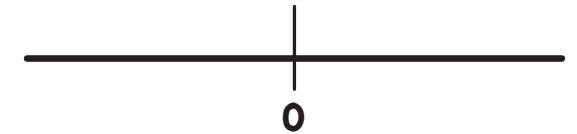
2



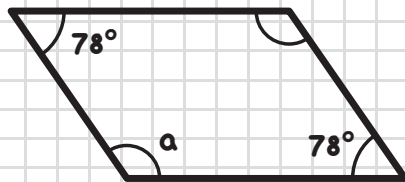
$$\text{Volume} = \underline{\mathbf{6345}} \text{ m}^3$$

3

$$3 - 6 = \underline{\mathbf{-3}}$$



4



$$a = \underline{\mathbf{102^\circ}}$$

5

$$\frac{2}{3} - \frac{1}{4} = \underline{\mathbf{\frac{5}{12}}}$$

6

$$\frac{3}{7} \div 4 = \underline{\mathbf{\frac{3}{28}}}$$

7

Write $\frac{3}{8}$ as a decimal

$$\underline{\mathbf{0.375}}$$

8

34% of 95 =

$$\mathbf{32.3}$$

9

3, 3, 3, 3, 5, 2, 9

Mean 4

Median 3

Mode 3

Range 7

10

3 - 2 x 8 =

$$\mathbf{-13}$$



MY LAST SCORE?!

HAVE I BEAT THAT?!

