

This test covers material students should know before starting Primary Mathematics SIE 6B.

1 Write an algebraic expression for each of the following.

(a) 10 less than r .

(b) Divide k by 9.

(c) 130 more than the product of 12 and h .

2 Simplify each algebraic expression.

(a) $20g - 3 + 40g - 3g =$

(b) $5q + 3 - 2q + 4 + q =$

3 Find the value of each algebraic expression if $x = 8$.

(a) $5x + 7 - 3x$

(b) $\frac{8 + 2x}{4}$

- 4 Jason is y years old. He is 4 years younger than his brother.
(a) In terms of y , how old will his brother be in 5 years' time?

(b) If $y = 12$, how old will his brother be in 5 years' time?

- 5 Mrs Tan baked 100 cookies. She gave c cookies to her neighbor and divided the remaining cookies into 4 boxes.
(a) In terms of c , how many cookies are in each box?

(b) If $c = 40$, how many cookies are in each box?

6 Solve the algebraic equations.

(a) $n + 4n = 60$

(b) $4 + 2k = 20$

7 Write an algebraic equation and solve. You can draw a bar model to help.

(a) Ana is x years old.

Her sister is 3 years older than she is.

Her brother is 5 years younger than she is.

The sum of their ages is 70. How old is Ana?

(b) The sum of 3 numbers is 85.

The second number is twice the first number.

The third number is 5 more than the second number.

What is the first number?

8 Divide. Express each answer as a whole number or proper fraction.

(a) $\frac{7}{8} \div 3 =$

(b) $\frac{3}{5} \div 6 =$

(c) $20 \div \frac{2}{5} =$

(d) $\frac{4}{5} \div \frac{1}{10} =$

9 Divide. Express each answer as a mixed number in its simplest form.

(a) $18 \div \frac{8}{9} =$

(b) $\frac{5}{8} \div \frac{5}{12} =$

(c) $\frac{4}{5} \div \frac{4}{9} =$

(d) $\frac{5}{6} \div \frac{3}{4} =$

10 Peter spent $\frac{2}{5}$ of his money on a pair of pants and $\frac{2}{3}$ of the remainder on 6 t-shirts. What fraction of his money did he spend on each t-shirt?

11 Write each ratio in its simplest form.

(a) $48 : 6 =$

(b) $18 : 45 : 81 =$

12 Find the missing numbers.

(a) $4 : 9 = 20 : \boxed{}$

(b) $8 : 2 : 3 = \boxed{} : \boxed{} : 12$

13 The ratio of Jayden's money to Hazel's money is $2 : 3$.

The ratio of Jayden's money to Siti's money is $6 : 5$.

What is the ratio of Jayden's money to Hazel's money to Siti's money?

- 14 The ratio of the number of red balls to blue balls to green balls in a ball pit is $6 : 2 : 3$.
There are 45 more red balls than green balls.
What is the number of blue balls in the pit?

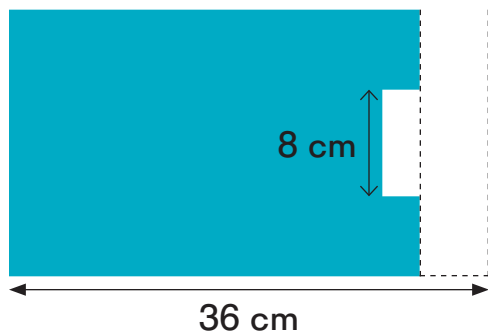
- 15 At an art exhibit, the ratio of the number of adults to the number of boys is $3 : 2$.
The number of boys is $\frac{1}{3}$ the number of girls.
There are 30 boys at the art exhibit.
How many people are at the art exhibit?

- 16 $\frac{1}{3}$ of Joey's savings is the same as $\frac{4}{5}$ of Ali's savings.
Joey saved \$140 more than Ali.
How much did Ali save?

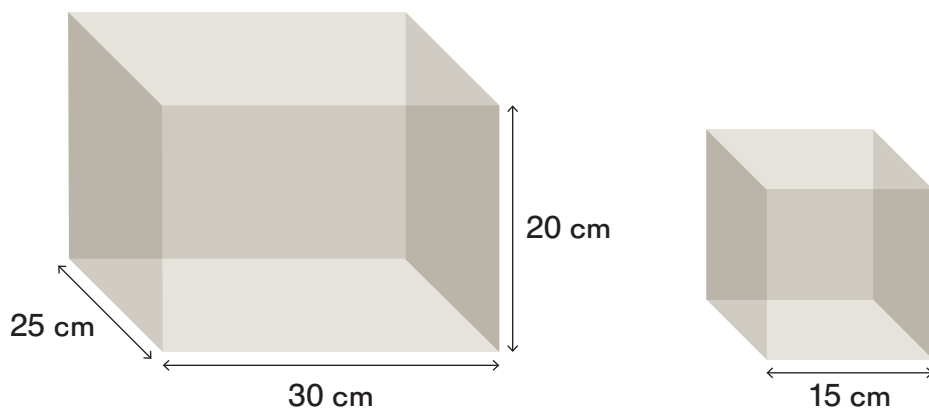
- 17 Hassan spent \$480 and had 80% of his money left.
How much money did he have at first?

- 18** A chess club had 140 members last year.
This year, it has 35 members.
What is the percentage decrease in the number of members?
- 19** $\frac{3}{7}$ of Mei's number of beads is equal to 30% of Hazel's number of beads.
Mei has 140 beads.
How many beads does Hazel have?

- 20** Gopal has a poster board that has an area of 720 cm^2 .
One side is 36 cm long.
He cuts out 3 squares from one side as shown in the figure.
The largest square is 8 cm long.
Find the area and perimeter of the remaining piece of poster board.



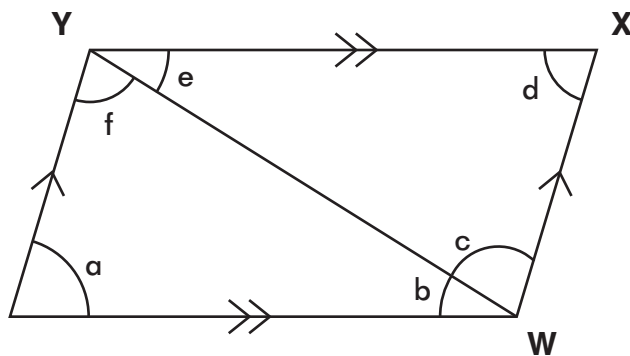
- 21** A rectangular tank measuring 30 cm by 25 cm by 20 cm is $\frac{3}{4}$ filled with water.
Some of the water is then poured into a cubical tank with sides of 15 cm to fill it up.
What is the volume of the water in liters and milliliters that is left in the rectangular tank?



22 Fill in the boxes.

- (a) In an acute triangle, all of the angles are less than °.
- (b) An isosceles triangle has equal sides and equal angles.
- (c) The sum of the angles in a triangle is °.
- (d) A parallelogram is a quadrilateral with pairs of parallel sides.
- (e) A trapezium has pair of parallel sides.
- (f) The sum of the angles between each pair of parallel sides in a rhombus is °.

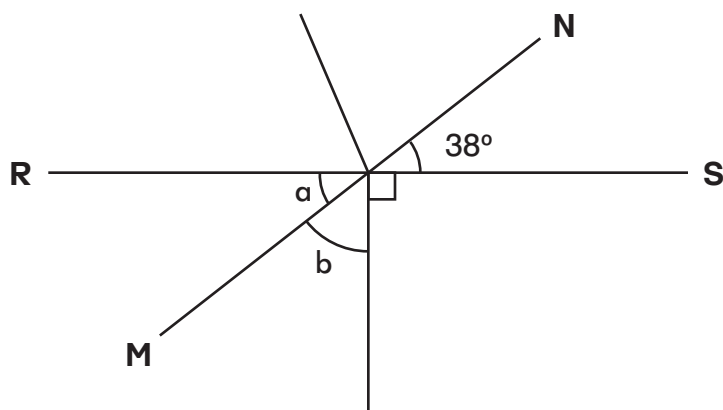
23 VWXY is a parallelogram. UW is a straight line. Fill in the boxes.



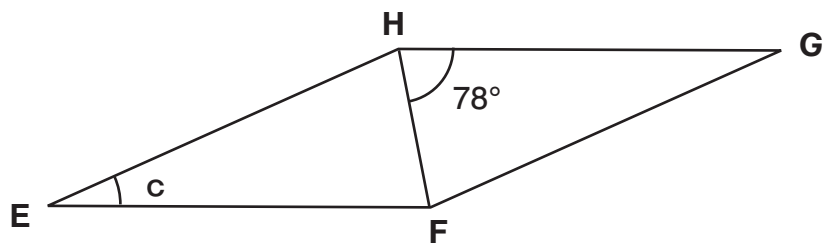
- (a) $\angle a = \angle$
- (b) $\angle f = 180^\circ - \angle b - \angle$
- (c) $\angle c = 180^\circ - (\angle$ $+ \angle d)$

- 24** Find the unknown marked angles in each figure (without using a protractor).

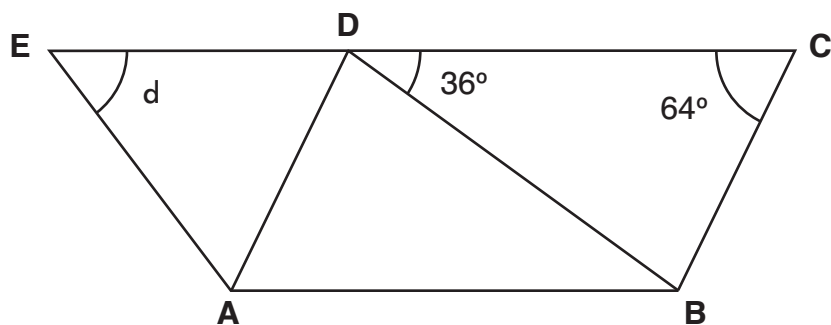
(a) MN and RS are straight lines.



(b) EFGH is a rhombus.



(c) ABCD is a parallelogram. ADE is an isosceles triangle with $AD = ED$. EC is a straight line.



Answer Key

1 (a) $r - 10$

(b) $\frac{k}{9}$

(c) $12h + 130$

2 (a) $57g - 3$

(b) $4q + 7$

3 (a) 23

(b) 6

4 (a) $y + 9$

(b) 21

5 (a) $\frac{100 - c}{4}$

(b) 15

6 (a) $n = 12$

(b) $k = 8$

7 (a) $3x - 2 = 70$

$x = 24$

24 years

(b) Let n = the first number

$5n + 5 = 85$

$n = 16$

8 (a) $\frac{7}{24}$

(b) $\frac{1}{10}$

(c) 50

(d) 8

9 (a) $20\frac{1}{4}$

(b) $1\frac{1}{2}$

(c) $1\frac{4}{5}$

(d) $1\frac{1}{9}$

10 $\frac{1}{15}$

11 (a) 8 : 1

(b) 2 : 5 : 9

12 (a) 45

(b) 32 : 8

13 6 : 9 : 5

14 30 blue balls

15 165 people

16 \$100

17 \$2400

18 75%

19 200 beads

Answer Key

20 Area: 584 cm^2
Perimeter: 104 cm

21 $7 \text{ l } 875 \text{ ml}$

22 (a) 90
(b) 2; 2
(c) 180
(d) 2
(e) 1
(f) 180

23 (a) d
(b) a
(c) e

24 (a) $\angle a = 38^\circ$
 $\angle b = 52^\circ$
(b) $\angle c = 24^\circ$
(c) $\angle d = 58^\circ$