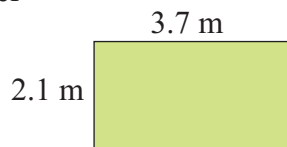


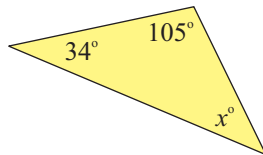
# Mathematical Skills Practice

## Set 1

1.  $2956 + 3128$
2. Convert  $\frac{39}{5}$  to a mixed number.
3.  $7.84 \times 1000$
4. Find 30% of 80 kg.
5. Divide \$80 in the ratio 3:5.
6. Find the perimeter of this rectangle.

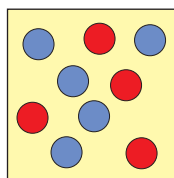


7. Find the area of a square with side length 8 m.
8. Find the volume of a rectangular prism with side lengths 3 m, 4 m and 5 m.
9. Convert 4.15 m to mm.
10. Find  $x^\circ$ .



11. If  $a = 5$  and  $b = -4$  find:  
 $2a^2 + 3b$
12. Transpose the following equation to make  $y$  the subject:  
 $2y - 8x = 20$
13. Factorise:  $2x^2 - 6x$
14. Simplify:  $a \times a \times a \times b \times a \times b$
15. Simplify:  $\frac{a}{6} + \frac{a}{4}$
16. Simplify:  $4\sqrt{5} + 3\sqrt{5}$

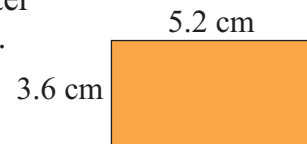
17. What is the probability of randomly choosing a **blue ball** from this box? Write answer as a fraction.



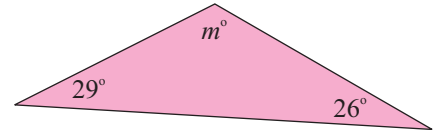
18. Find the **mean** of the following numbers:  
3, 8, 4

## Set 2

1.  $5809 + 2384$
2. Convert  $\frac{57}{8}$  to a mixed number.
3.  $3.791 \times 10\ 000$
4. Find 40% of \$30.
5. Divide 60 kg in the ratio 5:1.
6. Find the perimeter of this rectangle.

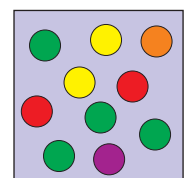


7. Find the area of a rectangle with side lengths 6 mm and 15 mm.
8. Find the volume of a rectangular prism with side lengths 4 cm, 5 cm and 6 cm.
9. Convert 8.3 m to cm.
10. Find  $m^\circ$ .



11. If  $n = -3$  and  $m = 6$  find:  
 $2n^2 - 4m$
12. Transpose the following equation to make  $a$  the subject:  
 $5a + 4b = 40$
13. Factorise:  $6n^2 - 15mn$
14. Simplify:  $2x \times x \times y \times 5x \times y \times x \times y$
15. Simplify:  $\frac{x}{3} + \frac{x}{5}$
16. Simplify:  $8\sqrt{3} - 3\sqrt{3}$

17. What is the probability of randomly choosing a **green ball** from this box? Write answer as a fraction in its simplest form.

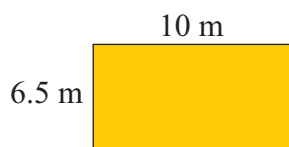


18. Find the **mean** of the following numbers:  
8, 3, 15, 2

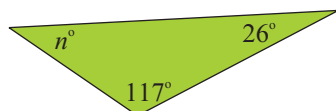
# Mathematical Skills Practice

## Set 3

1.  $7604 - 5518$
2. Convert  $3\frac{4}{5}$  to an improper fraction.
3.  $0.0291 \times 1000$
4. Find 6% of 50 m.
5. Divide 200 m in the ratio 2:3.
6. Find the perimeter of a square with side length 12 m.
7. Find the area of this rectangle.



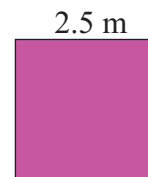
8. Find the volume of a cube with side length 8 cm.
9. Convert 0.082 m to mm.
10. Find  $n^\circ$ .



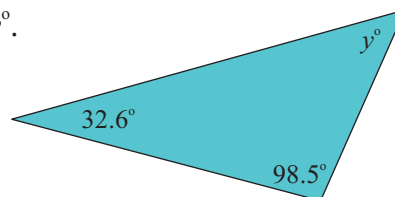
11. If  $p = -5$  and  $q = -3$  find:  
 $3pq - 5p + 2q$
12. Transpose the following equation to make  $b$  the subject:  
 $3(b - 4c) = 8$
13. Factorise:  $10x^2y - 8xy^2$
14. Simplify:  
 $n \times 3n \times 5m \times 2n \times m \times 4n \times n \times m$
15. Simplify:  $\frac{2x}{3} - \frac{x}{4}$
16. Simplify:  $2\sqrt{7} + 9\sqrt{7} - \sqrt{7}$
17. What is the probability of randomly choosing a **black ball** from a bag containing 10 black balls and 6 white balls?  
Write answer as a fraction in its simplest form.
18. Find the **mean** of the following numbers:  
2, 0, 11, 19

## Set 4

1.  $3401 - 2694$
2. Convert  $6\frac{4}{7}$  to an improper fraction.
3.  $0.004 \times 100$
4. Find 8% of 640 m.
5. Divide \$4900 in the ratio 2:5.
6. Find the perimeter of this square.



7. Find the area of the above square.
8. Find the volume of a rectangular prism with side lengths 4.0 cm, 2.5 cm and 20 cm.
9. Convert 35.78 cm to mm.
10. Find  $y^\circ$ .

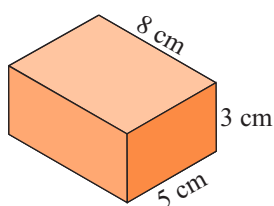


11. If  $a = -6$  and  $b = -3$  find:  
 $2a^2 - 5b + 4a$
12. Transpose the following equation to make  $x$  the subject:  
 $3y - 2x = -8$
13. Factorise:  $8p^2 - 24pq + 12p$
14. Simplify:  $4x^8 \times 5x$
15. Simplify:  $\frac{m}{6} + \frac{3m}{8}$
16. Simplify:  $5\sqrt{2} + 6\sqrt{2} - 4\sqrt{2}$
17. What is the probability of randomly choosing a **girl** from a class of 24 students that has 16 **girls**?  
Write answer as a fraction in its simplest form.
18. Find the **mean** of the following numbers:  
6, 1, 11, 26, 31

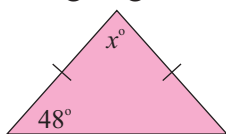
# Mathematical Skills Practice

## Set 5

1.  $8753 + 7959$
2. Convert  $\frac{3}{5}$  to a decimal.
3.  $8703.5 \div 100$
4. Find 12% of \$5000.
5. Divide 840 kg in the ratio 7:5.
6. Find the perimeter of a square with side length 4.5 m.
7. Find the area of a square with side length 4.5 m.
8. Find the volume of this rectangular prism.



9. Convert 0.0049 kg to g.
10. Find  $x^\circ$ .

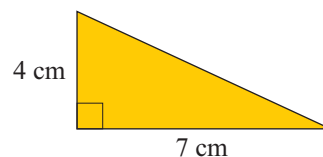


11. If  $n = -6$  and  $m = 5$  find:  
 $(2n + 3m)^2$
12. Transpose the following equation to make  $p$  the subject:  
$$\frac{3p - 4q}{8} = 6$$
13. Factorise:  $36ab^2c - 20abc^2$
14. Simplify:  $n^2m^6 \times 4n^5 \times 9m^2$
15. Simplify:  $\frac{6x}{7} - \frac{2x}{5}$
16. Simplify:  $2\sqrt{5} + 9\sqrt{3} - \sqrt{3} + \sqrt{5}$
17. What is the probability of randomly choosing a **white ball** from a bag containing 8 white balls, 10 blue balls and 2 yellow balls?  
Write answer as a fraction in its simplest form.
18. The **mean** of the following four numbers is 9. Find  $x$ .

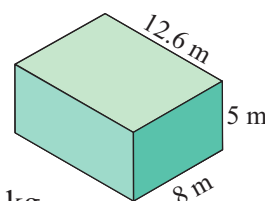
$$x, 3, 12, 8$$

## Set 6

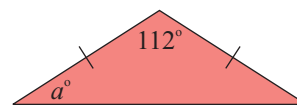
1.  $12\,839 + 5162$
2. Convert  $\frac{3}{4}$  to a decimal.
3.  $9\,730\,000 \div 10\,000$
4. Find 40% of 8200 kg.
5. Divide 7500 tonnes in the ratio 12:13.
6. Find the perimeter of an equilateral triangle with side length 12.4 m.
7. Find the area of this triangle.



8. Find the volume of this rectangular prism.



9. Convert 3.7 tonnes to kg.
10. Find  $a^\circ$ .



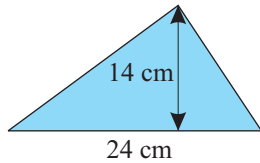
11. If  $x = 8$  and  $y = -4$  find:  
 $(5x + 12y)^2$
12. Transpose the following equation to make  $m$  the subject:  
$$\frac{3n + 5m}{6} = 15$$
13. Factorise:  $18a^2bc - 12abc^2 - 42ab^2c$
14. Simplify:  $3x^3y^4 \times 4y \times 5x^7$
15. Simplify:  $\frac{x}{4} - \frac{2x}{3} + \frac{x}{2}$
16. Simplify:  $4\sqrt{7} - 8\sqrt{7} - 3\sqrt{7} + 9\sqrt{7}$
17. What is the probability that a baby will be born on a Wednesday?
18. Find the **mean** of the following numbers.

$$3, 12, 8, 13, 0, 9, 4$$

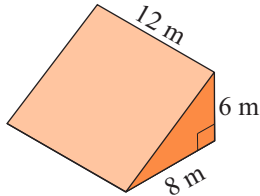
# Mathematical Skills Practice

## Set 7

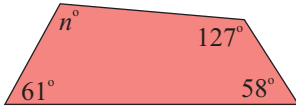
- 28 046 - 9485
- Convert 0.4 to a fraction in simplest form.
- $800\,000 \div 200$
- Find 30% of 280 m.
- Divide 10 kg in the ratio 3:1.
- Find the perimeter of a regular pentagon with side length 25 cm.
- Find the area of this triangle.



- Find the volume of this prism.



- Convert 85 g to kg.
- Find  $n^\circ$ .



- If  $a = 2$ ,  $b = -3$  and  $c = -4$  find:  
 $2a + 4b - 3ac$

- Transpose the following equation to make  $x$  the subject:

$$\frac{3(x + 5y)}{4} = 12$$

- Factorise:  $-16p^2q^3r^2 - 64p^4q^2r^3 - 32p^3q^5r^2$

- Simplify:  $3a^3b^4 \times 2a \times 4a^5b^7$

- Simplify:  $\frac{x}{4} \times \frac{2x}{3}$

- Simplify:  $4\sqrt{7} \times 3\sqrt{2}$

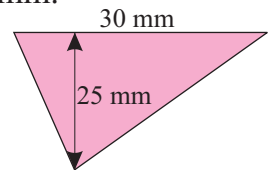
- What is the probability of randomly choosing a vowel from the following letters? Write answer as a fraction in its simplest form.

E            M            T            Q            P  
D            A            N            F            O            K            L

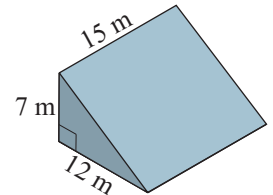
- Find the *median* of the following numbers.  
2, 3, 6, 8, 10, 12, 16, 25, 30

## Set 8

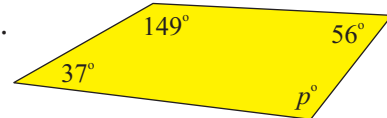
- 920 472 - 87 563
- Convert 0.24 to a fraction in simplest form.
- $6000 \div 30\,000$
- Find 90% of 240 tonnes.
- Divide 2.4 m in the ratio 2:1.
- Find the perimeter of a regular hexagon with side length 400 mm.
- Find the area of this triangle.



- Find the volume of this prism.



- Convert 0.04 m to cm.
- Find  $p^\circ$ .



- If  $p = -5$ ,  $q = -6$  and  $r = -1$  find:  
 $2pq - 4p - 2pr$

- Transpose the following equation to make  $m$  the subject:

$$\frac{2(n - 5m)}{5} = 8$$

- Factorise:  $5a^2b^4c^3 - 15a^4b^5c^6 - 10a^3b^7c^3$

- Simplify:  $\frac{8a^5b^4}{10a^2b}$

- Simplify:  $\frac{8n}{15m} \times \frac{5m}{4n}$

- Simplify:  $3\sqrt{6} \times 2\sqrt{3}$

- What is the probability of randomly choosing an odd number from the following numbers? Write answer as a fraction in its simplest form.

9    4    12    6    21    50    59  
27    5    29    0    3    25    33    63

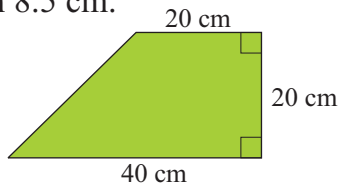
- Find the *median* of the following numbers.  
0, 4, 7, 9, 15, 19, 22, 29, 30, 33

# Mathematical Skills Practice

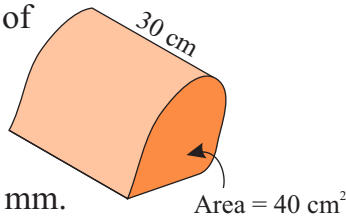
## Set 9

1.  $46 \times 7$
2. Convert 0.35 to a fraction in simplest form.
3.  $0.005 \times 4000$
4. Find 15% of 5000 kg.
5. Divide 3000 m in the ratio 2:3.
6. Find the perimeter of a regular decagon with side length 8.5 cm.

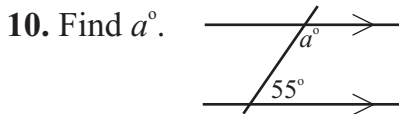
7. Find the area of this shape.



8. Find the volume of this prism.



9. Convert 0.8 m to mm.



11. If  $m = 6$  and  $n = -2$  find:

$$3(2m + 4n)^2 + 3mn$$

12. Transpose the following equation to make  $x$  the subject:

$$\frac{9(7 + 5y)}{4x} = \frac{3}{16}$$

13. Factorise:  $x^2 - y^2$

14. Simplify:  $\frac{8n^5 m^3}{4n^3 m^3}$

15. Simplify:  $\frac{8x}{15} \times \frac{5x}{4}$

16. Simplify:  $5\sqrt{12} \times 2\sqrt{3}$

17. A number is chosen randomly from the list below. What is the probability that the number is even **and** a factor of 24? Write answer as a fraction.

1    2    3    4    5    6    7    8    9    10    11    12

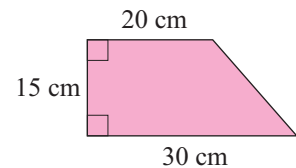
18. Find the **median** of the following numbers.

26, 12, 18, 8, 15, 9, 22

## Set 10

1.  $59 \times 8$
2. Convert 0.68 to a fraction in simplest form.
3.  $0.0035 \times 0.001$
4. Find 82% of \$200.
5. Divide 9.96 km in the ratio 2:1.
6. Find the perimeter of a rhombus with side length 12.5 cm.

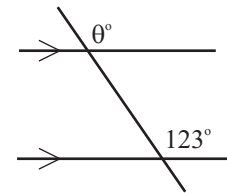
7. Find the area of this shape.



8. How many litres of water would a cube with side length 20 cm hold?

9. Convert 80 kg to tonnes.

10. Find  $\theta^\circ$ .



11. If  $a = -2$ ,  $b = -3$  and  $c = 2$  find:

$$abc - a^2b - ac^2 - a^2b^2$$

12. Transpose the following equation to make  $x$  the subject:

$$4(3x - 2y) = 2(3x + 5y)$$

13. Factorise:  $a^2 - 16$

14. Simplify:  $\frac{24a^8 b^7}{16a^6 b}$

15. Simplify:  $\frac{18x}{35} \times \frac{14}{81x}$

16. Simplify:  $2\sqrt{5} \times 3\sqrt{5}$

17. A number is chosen randomly from the list below. What is the probability that the number is a factor of 24 **and** 27? Write answer as a fraction.

1    2    3    4    5    6    7    8    9    10    11    12

18. Find the **median** of the following numbers.

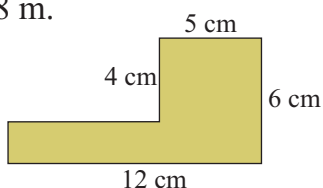
21, 42, 17, 18, 12, 19, 21, 33

# Mathematical Skills Practice

## Set 11

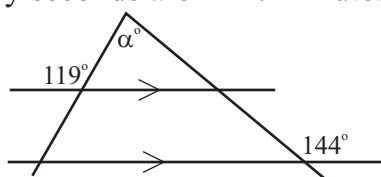
1.  $126 \times 9$
2. Convert 0.84 to a fraction in simplest form.
3.  $32\ 000 \times 0.002$
4. Find 42% of 2 tonnes.
5. Divide \$54 000 in the ratio 7:2.
6. Find the side length of a square that has a perimeter of 8.8 m.

7. Find the area of this shape.



8. How many litres of water would be required to fill a tank with dimensions 30 cm, 80 cm and 50 cm?
9. How many seconds are in 20 minutes?

10. Find  $\alpha^\circ$ .



11. If  $x = -3$  and  $y = -2$  find:  
 $4xy + 2x^2 - 6y^2$
12. Transpose the following equation to make  $x$  the subject:

$$3y - 5x = 2x + 7y$$

13. Factorise:  $25n^2 - m^2$

14. Simplify:  $\frac{18n^8m^7}{48n^9m^6}$

15. Simplify:  $\frac{12x}{15} \div \frac{6x}{5}$

16. Simplify:  $3\sqrt{6} \times 2\sqrt{15}$

17. A number is chosen randomly from the list below. What is the probability that the number is a factor of 25 *or* 36? Write answer as a fraction.

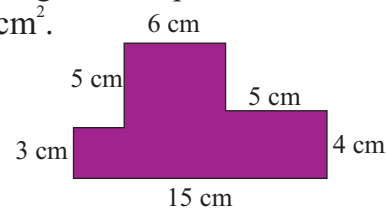
1      3      4      6      8      11  
2      5      7      9      10      12

18. Find the *median* of the following numbers.  
2, 5, 7, 13, 21, 26, 29, 33, 37, 39

## Set 12

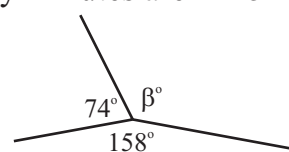
1.  $487 \times 6$
2. Convert 54% to a fraction in simplest form.
3.  $50\ 800 \times 0.0006$
4. Find 53% of \$4000.
5. Divide 63 000 kg in the ratio 2:5.
6. Find the side length of a square that has an area of  $81\text{ cm}^2$ .

7. Find the area of this shape.



8. How many litres of water would be required to fill a tank with dimensions 1.2 m, 50 cm and 50 cm?
9. How many minutes are in 15 hours?

10. Find  $\beta^\circ$ .



11. If  $p = -1$ ,  $q = -6$  and  $r = 2$  find:  
 $2(3p + 2q + 6r)(2p - 3q + 2r)$
12. Transpose the following equation to make  $a$  the subject:

$$2(a^2 + 3b) = 8c$$

13. Factorise:  $49p^2 - 64q^2$

14. Simplify:  $\frac{63a^9b^3c^6}{81a^2b^5c^9}$

15. Simplify:  $\frac{24x}{49y} \div \frac{18x}{14y}$

16. Simplify:  $2\sqrt{10} \times 3\sqrt{20}$

17. Two coins are tossed. What is the probability that the result will be two heads?

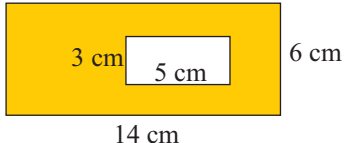
18. Find  $x$  if the *mean* of the following numbers is 7.

$$x, 5, 7, 3, 11, 6, 9, 9, 6$$

# Mathematical Skills Practice

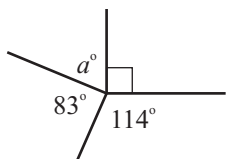
## Set 13

1.  $245 \times 5$
2. Convert 2.7% to a decimal.
3.  $32\ 000 \times 5000$
4. Find 89% of 5 m.
5. Divide 0.3 kg in the ratio 5:1.
6. Find the side length of a square that has an area of  $0.04\text{ m}^2$ .

7. Find the shaded area of this shape.
 

8. How many litres of water would be required to fill a tank with dimensions 1.5 m, 2 m and 500 mm?
9. How many hours are in one week?

10. Find  $a^\circ$ .



11. If  $x = -3$ ,  $y = -1$  and  $z = 5$  find:  
 $(2xy + 3yz - xz)(xy - 2xz + 6yz)$

12. Transpose the following equation to make  $n$  the subject:

$$\frac{3m + 2}{4n - 1} = \frac{6}{7}$$

13. Factorise:  $2 - 50m^2$

14. Simplify:  $(n^2m^3)^4$

15. Simplify:  $\frac{3}{a} + \frac{5}{2a}$

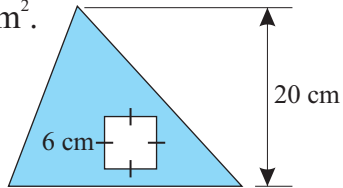
16. Simplify:  $5\sqrt{12} \times 3\sqrt{24}$

17. Two coins are tossed. What is the probability that one head and one tail will result?

18. The **median** of the following numbers is 8 and the **mean** is 9. Find the largest number.  
 $5, a, b$

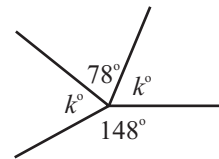
## Set 14

1.  $32 \times 13$
2. Convert  $\frac{3}{5}$  to a percentage.
3.  $850\ 000 \div 5\ 000\ 000$
4. Find 1.5% of \$4000.
5. Divide 36 000 L in the ratio 2:7.
6. Find the side length of a square that has an area of  $1.44\text{ cm}^2$ .

7. Find the shaded area of this shape.
 

8. How many litres of water would be required to fill a tank with dimensions 200 mm, 300 mm and 400 mm?
9. How many  $\text{mm}^2$  are in  $4\text{ cm}^2$ ?

10. Find  $k^\circ$ .



11. If  $A = -6$ ,  $M = 8$  and  $F = -3$  find:  
 $AF + MF - 4A + 3F - M$

12. Transpose the following equation to make  $c$  the subject:

$$\frac{5a - 2c}{6 + c} = \frac{4}{7}$$

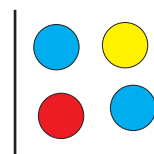
13. Factorise:  $8a - 18ab^2$

14. Simplify:  $(2a^3b^2c)^5$

15. Simplify:  $\frac{6}{a} + \frac{2}{b}$

16. Simplify:  $3\sqrt{5}(2\sqrt{5} + 3\sqrt{7})$

17. Two balls are taken at the same time from this box. What is the probability they are both blue?



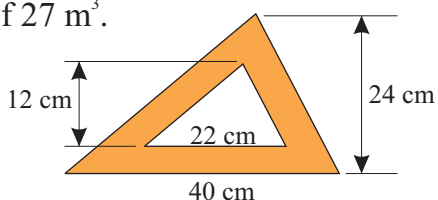
18. The **median** of three numbers is 11. The **mean** of the three numbers is 10. The smallest of the three numbers is 6. What is the largest number?

# Mathematical Skills Practice

## Set 15

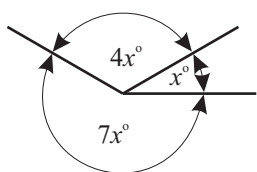
1.  $19 \times 25$
2. Convert  $\frac{23}{25}$  to a percentage.
3.  $0.000\ 000\ 8 \div 0.000\ 000\ 04$
4. Find 0.2% of 5000 kg.
5. Divide 0.24 m in the ratio 5:3.
6. Find the side length of a cube that has a volume of  $27\text{ m}^3$ .

7. Find the shaded area of this shape.



8. A cubic tank held 64 litres of water. What was the side length (in cm) of the cube?
9. How many  $\text{mm}^2$  are in  $0.03\text{ m}^2$ ?

10. Find  $x^\circ$ .



11. If  $n = -1$  and  $m = -2$  find:

$$3n^4 + m^3 - 2n^5 + m^5$$

12. Find  $x$ :  $\frac{2(3x-4)}{3(5-2x)} = \frac{4}{3}$

13. Factorise:  $20a^2c - 125b^2c$

14. Simplify:  $\frac{(3x^2y^4)^4}{(9x^5y^3)^2}$

15. Simplify:  $\frac{m}{3n} + \frac{5m}{2n}$

16. Simplify:  $2\sqrt{6}(3\sqrt{15} - 4\sqrt{2})$

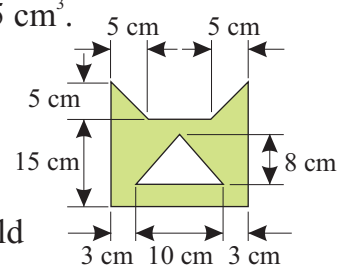
17. The probability of rain on any day in June in a certain town was 0.6. On how many days in June would rain be expected?

18. The **mean** of the number of goals scored in the first five games played by a soccer team was 4 goals. The team scored 10 goals in the next game. What is the mean of the scores after this game?

## Set 16

1.  $29 \times 33$
2. Convert  $\frac{17}{20}$  to a percentage.
3.  $85\ 000\ 000 \div 0.005$
4. Find 1.2% of \$40 000.
5. Divide 63 000 kg in the ratio 5:2.
6. Find the side length of a cube that has a volume of  $125\text{ cm}^3$ .

7. Find the shaded area of this shape.



8. A cubic tank held  $8\text{ cm}^3$  of water. What was the side length (in mm) of the cube?
9. How many  $\text{m}^2$  are in  $0.5\text{ km}^2$ ?

10. Find  $\theta^\circ$ .



11. If  $x = -1$  and  $y = -2$  find:

$$(2x)^4 + 2y^3 - (3x)^5 + (2y)^3$$

12. Find  $x$ :  $\frac{6(2x+9)}{5(5+x)} = \frac{9}{4}$

13. Factorise:  $x^2 + 7x + 10$

14. Simplify:  $\frac{(2n^2m^3)^3 \times (4n^3m^4)^3}{(8n^5m^6)^2}$

15. Simplify:  $\frac{3x}{4y} + \frac{5x}{6y}$

16. Simplify:  $(3\sqrt{2} + 2\sqrt{5})(5\sqrt{2} - 3\sqrt{5})$

17. Two cards are drawn from a standard deck of playing cards. What is the probability that they are both red?

18. The **mean** of three numbers is 7. The **median** of the three numbers is 6. The largest number is four times the smallest number. Find the three numbers.