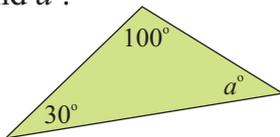# Mathematical Skills Practice

Set 1

1. 386 + 427
2. Convert $\frac{21}{5}$ to a mixed number.
3. 3.6 × 100
4. Find 20% of $60.
5. Divide $36 in the ratio 2:1.
6. Find the perimeter of a rectangle with side lengths 7 m and 4 m.
7. Find the area of this rectangle.
8. Find the volume of a rectangular prism with side lengths 2 m, 4 m and 5 m.
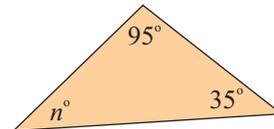9. Convert 8.45 m to mm.
10. Find $a°$.

11. If $m = 5$ and $n = -3$ find:
    $$m^2 + 2n$$
12. Transpose the following equation to make y the subject:
    $$2y - 3x = 6$$
13. Factorise:
    $$x^2 - 5x$$
14. Simplify:
    $$a \times a \times a \times a \times a \times a$$
15. Simplify:

$$\frac{a}{4} + \frac{a}{2}$$

Set 2

1. 563 - 378
2. Convert $3\frac{4}{7}$ to an improper fraction.
3. 0.52 × 1000
4. Find 30% of 80 kg.
5. Divide $40 in the ratio 2:3.
6. Find the perimeter of a square with side length 8 mm.
7. Find the area of this square.
8. Find the volume of a cube with side length 2 cm.
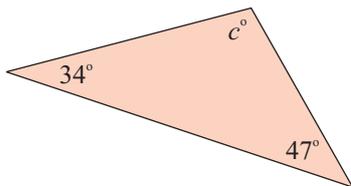9. Convert 5.852 m to cm.
10. Find $n°$.

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

$$\frac{3x}{8} - \frac{x}{4}$$

Mathematical Skills Practice

Set 3

1. $857 + 468$
2. Convert $\frac{3}{5}$ to a percentage.
3. $234 \div 100$
4. Find 40% of $220.
5. Divide 60 kg in the ratio 4:1.
6. Find the perimeter of a 8 m × 7 m rectangle.
7. Find the area of this rectangle.
8. Find the volume of a 3 cm × 5 cm × 4 cm rectangular prism.
9. Convert 8000 cm^3 to litres.
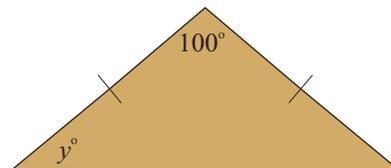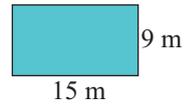10. Find $c°$.

11. If a = -4 and b = 7 find:
    $3ab - 2a$
12. Transpose the following equation to make A the subject:
    $3A - 2B = 5C$
13. Factorise:
    $6x^2 + 8x$
14. Expand:
    $3(x - 4y)$
15. Simplify:
    $2x \times 3x \times 4x$
16. Simplify:

    $$\frac{m}{4} + \frac{3m}{8}$$

Set 4

1. $924 - 677$
2. Convert 70% to a fraction.
3. $0.8 \div 100$
4. Find 60% of 120 kg.
5. Divide $80 in the ratio 1:7.
6. Find the perimeter of this rectangle.

9 m
15 m

7. Find the area of this rectangle.
8. Find the volume of a cube with side length 3 cm.
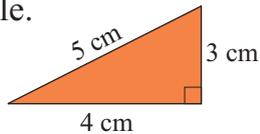9. Convert 3 km to m.
10. Find $y°$.

11. If m = 8 and n = -5 find:
    $2mn + 5n$
12. Transpose the following equation to make y the subject:
    $\frac{y}{3} - x = z$
13. Factorise:
    $9m^2 - 12mn$
14. Expand:
    $5(3a + 4b)$
15. Simplify:
    $x^2 \times x^4$
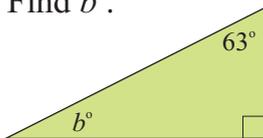16. Simplify:

    $$\frac{5n}{6} - \frac{2n}{3}$$

Mathematical Skills Practice

Set 5

1. 6825 + 7378
2. Convert 45% to a decimal.
3. 139.8 ÷ 100
4. Find 75% of $400.
5. Divide 45 kg in the ratio 2:3.
6. Find the perimeter of this triangle.

7. Find the area of this triangle.
8. Find the volume of a cube with side length 4 mm.
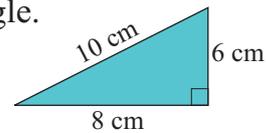9. Convert 0.8 km to m.
10. Find $b°$.

11. If $a = -6$ and $b = -3$ find:
    $2a + 3b$
12. Transpose the following equation to make n the subject:
    $m = n + pq$
13. Factorise:
    $10x^2 - 12xy$
14. Expand:
    $5(3x + 2y)$
15. Simplify:
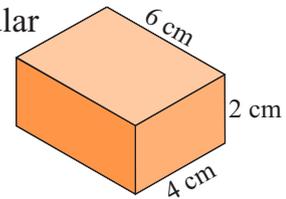 $m^3 \times m^5$
16. Simplify:
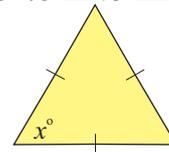
    $$\frac{m}{4} - \frac{m}{12}$$

Set 6

1. 5201 - 2653
2. Convert $\frac{4}{5}$ to a percentage.
3. 9.342 × 10 000
4. Find 25% of 600 mm.
5. Divide $700 in the ratio 5:2.
6. Find the perimeter of this triangle.

7. Find the area of this triangle.
8. Find the volume of this rectangular prism.

9. Convert 64.8 m to mm.
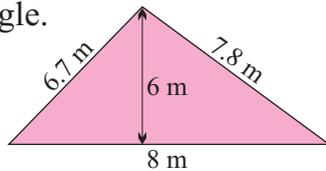10. Find $x°$.

11. If $x = -2$ and $y = 5$ find:
    $3y - 4x$
12. Transpose the following equation to make s the subject:
    $p = r + st$
13. Factorise:
    $6abc + 18a^2c$
14. Expand:
    $a(3b - 5c)$
15. Simplify:
    $m^2 \times m^3 \times m^6$
16. Simplify:
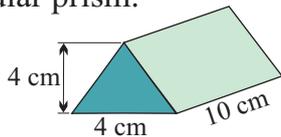
    $$\frac{2x}{3} + \frac{x}{9}$$
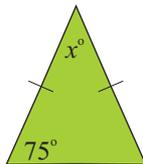
Mathematical Skills Practice

Set 7

1. 85×7
2. Convert 0.387 to a percentage.
3. $234 \div 100$
4. Find 90% of $8000.
5. Divide 250 m in the ratio 4:1.
6. Find the perimeter of this triangle.

7. Find the area of this triangle.
8. Find the volume of this triangular prism.

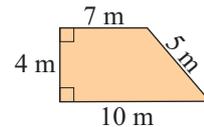

9. Convert 0.091 cm to mm.
10. Find $x°$.

11. If $x = 9$ and $y = 3$ find:
    $3y - 2x$
12. Transpose the following equation to make B the subject:
    $A = B^2$
13. Factorise:
    $4xy + 8x^2 - 12x$
14. Expand:
    $m(3m + 5n)$
15. Simplify:
    $2x^2 \times 3x^2y \times 5y^3$
16. Simplify:
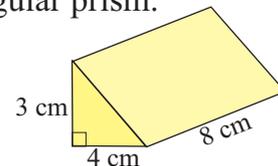 $\frac{3m}{5} + \frac{7m}{10}$

Set 8

1. 324×6
2. Convert $\frac{39}{7}$ to a mixed number.
3. 0.0005×100
4. Find 65% of 2000 kg.
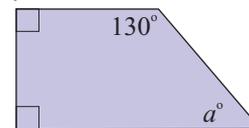5. Divide 24 kg in the ratio 3:5.
6. Find the perimeter of this shape.

7. Find the area of this shape.
8. Find the volume of this triangular prism.

9. Convert 430 m to km.
10. Find $a°$.

11. If $x = -6$ and $y = 0$ find:
    $2xy - 3x$
12. Transpose the following equation to make y the subject:
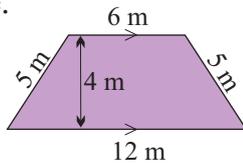 $x = \frac{4y^2}{5}$
13. Factorise:
    $18a^2 - 12ab$
14. Expand:
    $2x(3x - 5y)$
15. Simplify:
    $3x^2y^5z^8 \times 2xy^5z$
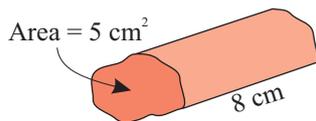16. Simplify:
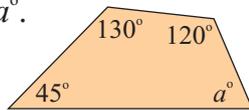 $\frac{5x}{6} - \frac{x}{12}$

Mathematical Skills Practice

Set 9

1. 42×21
2. Convert $6\frac{8}{9}$ to an improper fraction.
3. $400 \div 10\,000$
4. Find 23% of $1000.
5. Divide $500 in the ratio 9:1.
6. Find the perimeter of this shape.

7. Find the area of this shape.
8. Find the volume of this object.

9. Convert 650 kg to tonnes.
10. Find a°.

11. If $x = -4$ and $y = -5$ find:
    $x^2 - 2y$
12. Transpose the following equation to make b the subject:
    $a = 3b - c$
13. Factorise:
    $-16x^2y - 24xy$
14. Expand:
    $6y(7 + 3y)$
15. Simplify:
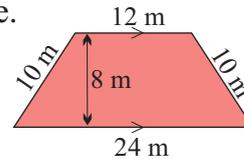 $m^8 \div m^3$
16. Simplify:
    $$\frac{3p}{4} - \frac{p}{16}$$

Set 10

1. $75 \div 5$
2. Convert 86% to a fraction in its simplest form.
3. $0.0091 \times 100\,000$
4. Find 42% of $2000.
5. Divide $300 in the ratio 3:7.
6. Find the perimeter of this shape.

7. Find the area of this shape.
8. Find the volume of a rectangular prism that is 30 cm wide, 40 cm tall and 50 cm long.
9. Convert this volume to litres.
10. Find x°.

11. If $x = -3$ and $y = 4$ find:
    $3y + 5x$
12. Transpose the following equation to make y the subject:
    $x = 7 - y$
13. Factorise:
    $14pq^3 - 21p^2q$
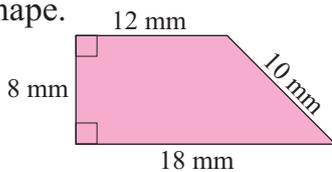14. Expand:
    $4p(3pq + 5)$
15. Simplify:
    $6x^7 \div x$
16. Simplify:
    $$\frac{2n}{7} + \frac{11n}{21}$$
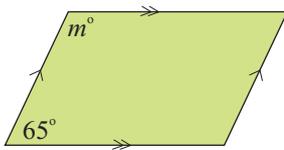
Mathematical Skills Practice

Set 11

1. $248 \div 8$

2. Convert 7.5% to a decimal.

3. $859.3 \div 100$

4. Find 15% of 400 m.

5. Divide 88 kg in the ratio 5:6.
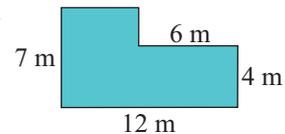
6. Find the perimeter of this shape.

7. Find the area of this shape.

8. Find the volume of a cube with side length 5 cm.

9. Convert 0.37 tonnes to kg.
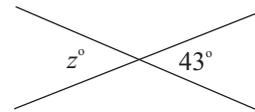
10. Find m°.

11. If a = -1 and b = -3 find:
$$3a^2 - 5ab$$

12. Transpose the following equation to make q the subject:
$$m = 3p + 4q$$

13. Factorise:
$$a^2 - 25b^2$$

14. Expand:
$$3x(5x - 7y)$$

15. Simplify:
$$m^7 n^6 \div m^4 n^2$$

16. Simplify:
$$\frac{x}{2} + \frac{7x}{8}$$

Set 12

1. $387 \div 9$

2. Convert $11\frac{1}{4}$% to a fraction.

3. 0.409×100

4. Find 21% of 50 tonnes.

5. Divide $800 in the ratio 4:1.

6. Find the perimeter of this shape.

7. Find the area of this shape.

8. Find the volume of a hole that is 10 m long, 50 cm wide and 50 cm deep.

9. Convert 50 g to kg.
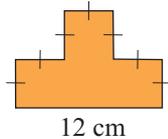
10. Find z°.

11. If a = 10 and b = -6 find:
$$3ab + b^2$$

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

13. Factorise:
$$5(x + 3) - y(x + 3)$$

14. Expand:
$$2m(6m^2 - 1)$$

15. Simplify:
$$16x^9 y^7 \div 4xy^7$$
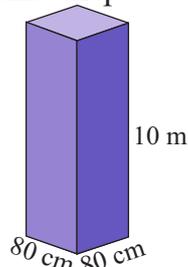
16. Simplify:
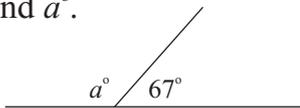$$\frac{9n}{10} - \frac{2n}{5}$$

Mathematical Skills Practice

Set 13

1. $8 + 5 \times 2$
2. Convert 0.031 to a percentage.
3. $569.3 \div 1000$
4. A $60 CD is discounted by 20%. Find the new price.
5. Divide $300 in the ratio 3:2:1.
6. Find the perimeter of this shape.

12 cm

7. Find the area of this shape.
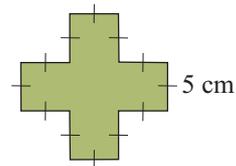8. Find the volume of concrete needed to make this pillar.

10 m

80 cm 80 cm

9. Convert 0.2 kg to g.
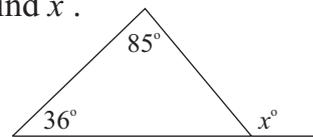10. Find $a°$.

$a°$ $67°$

11. If a = -5 and b = 2 find:
    $$2ab - 5b^2$$
12. Transpose the following equation to make Q the subject:
    $$P = 2QR - T$$
13. Factorise:
    $$12x^2 + 16xy + 18y^2$$
14. Expand:
    $$-3n\,(5m - 2n^2)$$
15. Simplify:
    $$(a^3b^2)^4$$
16. Simplify:
    $$\frac{x}{2} + \frac{x}{3}$$

Set 14

1. $6 \times 5 + 2 \times 8$
2. Convert $\frac{9}{5}$ to a decimal.
3. $0.00318 \times 10\,000$
4. A person earns $600 per week. They receive a 3% pay rise. What is their new weekly pay?
5. Divide 48 m in the ratio 2:1:1.
6. Find the perimeter of this shape.

5 cm

7. Find the area of this shape.
8. Find the side length of a cube with a volume of 1000 cm^3.
9. How many seconds are in two minutes?
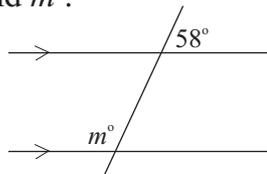10. Find $x°$.

85°

36° $x°$

11. If a = -2 and b = 10 find:
    $$4a^2b - 3ab$$
12. Transpose the following equation to make y the subject:
    $$x = 3(y - z)$$
13. Factorise:
    $$25m^3 - 15m^2n + 30m$$
14. Expand:
    $$(x + y)(x - y)$$
15. Simplify:
    $$(2x^6y^3)^3$$
16. Simplify:
    $$\frac{a}{4} - \frac{a}{5}$$

Set 15

1. Find the average of 8, 14, 5.
2. Convert $\frac{26}{1000}$ to a decimal.
3. $0.03 \times 100\ 000$
4. A puppy weighs 600 g. It increases its mass by 20%. Find its new mass.
5. Divide 160 kg in the ratio 5:3.
6. The perimeter of a square is 40 cm. Find the side length of the square.
7. Find the area of this square.
8. Find the side length of a cube that has a volume of 512 cm^3.
9. How many minutes are in three and a half hours?
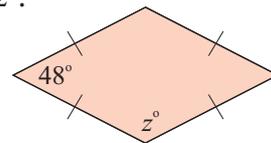10. Find m°.

11. If $a = 6$ and $b = 5$ find:
    $$2ab - 3b^2$$
12. Transpose the following equation to make n the subject:
    $$m = \frac{3n - 5}{7}$$
13. Factorise:
    $$18x^2y - 6x$$
14. Expand:
    $$(x + 5)(x + 2)$$
15. Simplify:
    $$(3x^4)^2 \times 2x^5$$
16. Simplify:
    $$\frac{c}{2} + \frac{2c}{5}$$

Set 16

1. Find the average of 9, 16, 11.
2. Convert 0.029 to a fraction.
3. $6.54 \div 1000$
4. A \$240 dress is discounted by 20%. Find the new price.
5. Divide 750 m in the ratio 4:1.
6. The perimeter of a rectangle is 60 cm. The length is twice the width. Find the length of the rectangle.
7. Find the area of this rectangle.
8. How many blocks of ice each with a volume 10 cm^3 could be made from a litre of water?
9. Convert $6\frac{1}{2}$ m to cm.
10. Find z°.

11. If $a = 3$ and $b = -4$ find:
    $$\frac{1}{2}(2a - 3b)$$
12. Transpose the following equation to make q the subject:
    $$p = \frac{5q}{6} + 4$$
13. Factorise:
    $$3xy + 12x^2y$$
14. Expand:
    $$(2m + 3n)(2m - 3n)$$
15. Simplify:
    $$3x^0$$
16. Simplify:
    $$\frac{2a}{3} + \frac{a}{4}$$