

This side of this worksheet reviews number skills. The other side of this worksheet refers to *Pearson Mathematics 9* Chapter 2 'Pythagoras' theorem' sections 2.1 and 2.2.

Name: _____

Class: _____

Teacher: _____

1 Increase 12 tonnes by 60%.

2 Evaluate $0.046 - 0.039$.

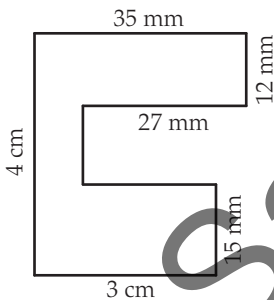
3 Evaluate $6 \div \frac{2}{3}$.

4 Simplify $3^2 \times 2^4 \times 3^3 \times 2$.

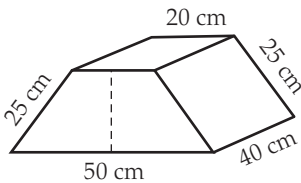
5 Factorise $-6ab - 3a$.

6 Expand $x + 3(x - 2)$.

7 Find the area of the following shape in square centimetres.

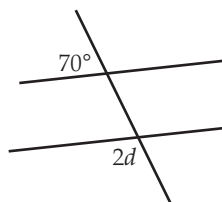


8 What is the shape of the left view of this object? Give its dimensions.



9 Convert $S40^\circ W$ to a true bearing.

10 Find the value of the pronumeral in the diagram.



11 Simplify the ratio 3 dollars : 60 cents.

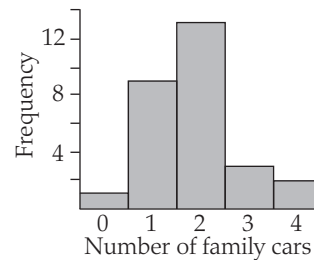
12 Which is better value: a 4 L tin of paint for \$25.10 or a 10 L tin for \$77?

13 Substitute $r = 2.3$ into $C = 2\pi r$ to find C . Round your answer to 1 decimal place.

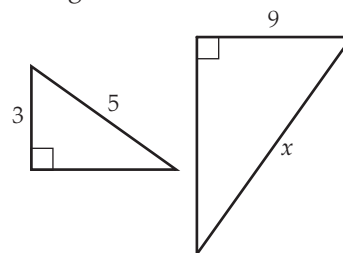
14 Simplify $\frac{10a + 15}{5}$.

15 Solve $2(3x + 1) = 14$.

16 The frequency graph below shows the number of family cars for the students in a class. What percentage of students have at least three family cars? Give your answer to 1 decimal place.



17 Find the value of x in the following similar triangles.



Pythagoras' theorem

Practice

2A

Show all your working

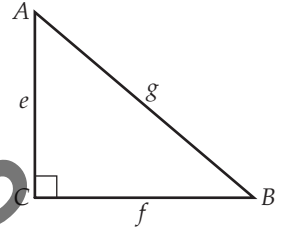


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For online help, go to your *Pearson Mathematics 9* eBook.

- 1** Use the converse of Pythagoras' theorem to determine whether a triangle with sides 5 m, 6 m and 9 m is right-angled.

- 2** For the following right-angled triangle, which side is the hypotenuse?



- 3** In the triangle in the previous question, which angle is the right angle?

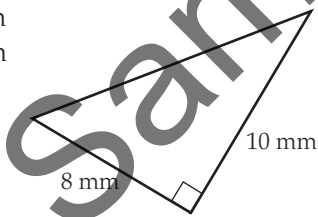
- 4** Complete the following statement of Pythagoras' theorem for the triangle in Question 2.

$$\text{---} = e^2 + \text{---}$$

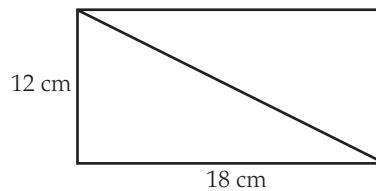
- 5** Write $\sqrt{18}$ as an approximation to 2 decimal places.

- 6** Simplify $\sqrt{\frac{16}{25}}$.

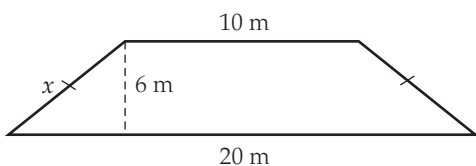
- 7** Calculate the length of the hypotenuse in this triangle, to 2 decimal places.



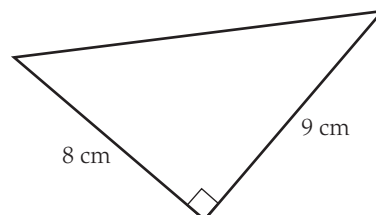
- 8** Find the length of the diagonal in this rectangle, to 2 decimal places.



- 9** Find the unknown length in this shape, to 2 decimal places.



- 10** Find the perimeter of this triangle, to 2 decimal places.



Practice
2A mark:
/10

Name: _____

Class: _____

Teacher: _____

This side of this worksheet reviews number skills. The other side of this worksheet refers to *Pearson Mathematics 9* Chapter 2 'Pythagoras' theorem' sections 2.3, 2.4 and 2.5.

1 Decrease \$725 by 20%.

2 Evaluate $1.256 - 0.747$.

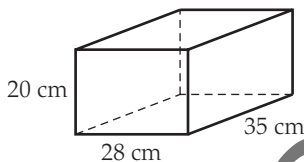
3 Evaluate $1\frac{1}{4} + 2\frac{2}{5}$.

4 Simplify $(2^6 \times 3^7)^0$.

5 Factorise $-ab + 3ac$.

6 Expand $x(x + 2) + 3(x + 2)$.

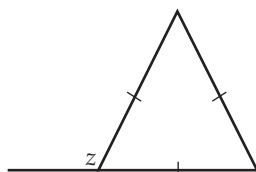
7 Calculate the surface area of the following shape.



8 Describe what shapes, and how many of each, are needed to make a net for a regular hexagonal prism.

9 Convert $N35^\circ W$ to a true bearing.

10 Find the value of the pronumeral in the diagram.



11 Find x if $4 : 3 = 24 : x$.

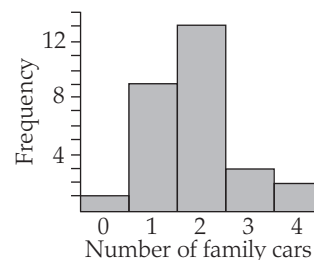
12 A family travelling in a car drives 80 km in 45 minutes, and then has a 15-minute break before travelling another 110 km in 70 minutes. Find the average speed of the journey in km/h to 2 decimal places.

13 Simplify the following without expanding.
 $2(x + 2) - 3(x + 2) + 4(x + 2)$

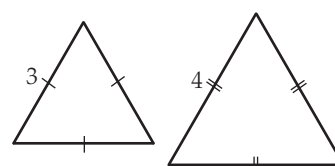
14 Simplify $\frac{4a + 12}{6}$.

15 Solve $4(2x - 3) = 12$.

16 The frequency graph below shows the number of family cars for the students in a class. What percentage of students have more than one family car? Give your answer to 1 decimal place.



17 What similarity test (AAA, SSS, SAS or RHS) would you use to show that the following triangles are similar?

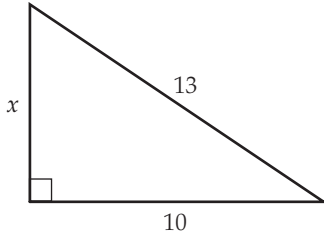


Show all your working

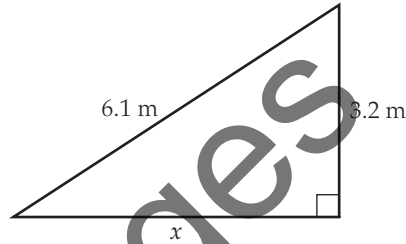
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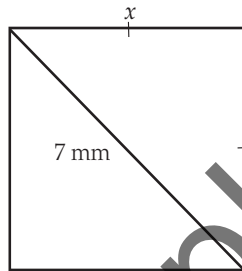
- 1** Find the length of the unknown side in the following triangle, to 2 decimal places.



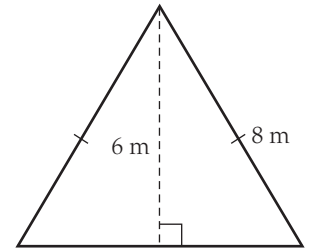
- 2** Find the length of the unknown side in the following triangle, to 1 decimal place.



- 3** Find the length of the unknown side, to 2 decimal places.



- 4** Find the perimeter of the triangle, to 2 decimal places.



- 5** Josh is building a wall for an extension that is 2.4 m wide and 2.1 m tall. He wants to support the wall with two diagonals. What is the total length of wood needed for these two diagonals? Give your answer to 2 decimal places.

- 6** Josh wants to test if a rectangular room in the house is 'square'. (Here, 'square' means that every corner in the room is a right angle.) One wall has a width of 3.2 m and the wall next to it is 2.7 m. He measures the diagonal across the room to be 4.3 m. Use Pythagoras' theorem to check if this room is 'square'.

- 7** Josh is also doing repairs to the roof of the house. He leans the 2.5 m ladder against a wall so that the bottom of the ladder is 1.1 m from the house. How high is the top of the ladder from the ground? Give your answer to 2 decimal places.

- 8** Is (24, 32, 40) a Pythagorean triple?

Practice
2B mark:
18