

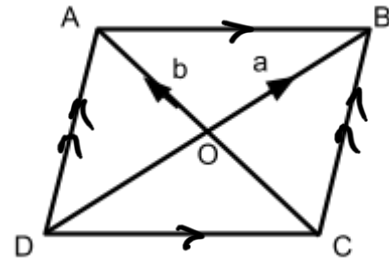


# QT Quick Test - Grade 5 SC



4. ABCD is a parallelogram.  
The diagonals of the parallelogram intersect at O.

vector OB = a          vector OA = b



a) Find in terms of a, the vector BD. (1 mark)

$$\begin{aligned} \vec{BD} &= \vec{BO} + \vec{OD} \\ &= -a + -a \\ &= \underline{\underline{-2a}} \end{aligned}$$

b) Find in terms of a and b, the vector CD. (2 marks)

$$\begin{aligned} \vec{CD} &= \vec{CO} + \vec{OD} \\ &= b - a \\ &= \underline{\underline{b - a}} \end{aligned}$$

$$\begin{aligned} \vec{CB} &= \vec{CO} + \vec{OB} \\ &= b - a + 2a \\ &= \underline{\underline{a + b}} \end{aligned}$$

c) Find in terms of a and b, the vector CB. (2marks)

5. There are 2 times as many red pens as blue pens and 3 times as many blue pens as yellow pens in a box.

Write down the ratio of the number of red pens to blue pens to yellow pens. (2 marks)

$$\begin{aligned} R &: B : Y \\ 2 &: 1 : \frac{1}{3} \end{aligned} \quad \left. \vphantom{\begin{matrix} R \\ 2 \end{matrix}} \right) \times 3$$

$$6 : 3 : 1$$

# QT Quick Test - Grade 5c



6. Sair is buying a fridge freezer.

10% is added to the price of the fridge freezer to pay the delivery charge.

Sair then has to pay a total of £330.

What is the price of the fridge with no delivery charge?

(3 marks)

$$330 = 110\% \text{ Price}$$

$$330 = 1.1 P$$

$$\text{Price} = \pounds 300$$

$$\frac{330}{1.1} = P$$

$$\frac{3300}{11} = P$$

7. Sarah is driving to France for her holiday.

She will drive a total distance of 420 km.

Sarah leaves home at 5:30 in the morning.

→ It takes her 1.5 hours to travel the first 105 km.

→ Use this information to estimate the time Sarah will arrive.

(4 marks)

$$\text{Speed} = \frac{\text{Dist}}{\text{Time}}$$

$$= \frac{105}{1.5}$$

$$= 70 \text{ km/h}$$

$$\text{Speed} = \frac{\text{Dist}}{\text{Time}}$$

$$70 = \frac{315}{\text{Time}}$$

$$\text{Time} = \frac{315}{70} = 4.5$$

$$\begin{array}{r} 420 \\ -105 \\ \hline 315 \end{array}$$



11:30 am.

# QT Quick Test - Grade 5 SC



8. Work out  $4.1 \times 4.24$ .

(2 marks)

$$\begin{array}{r} 4.24 \\ \times 4.1 \\ \hline 424 \\ 16960 \\ \hline 17384 \end{array}$$

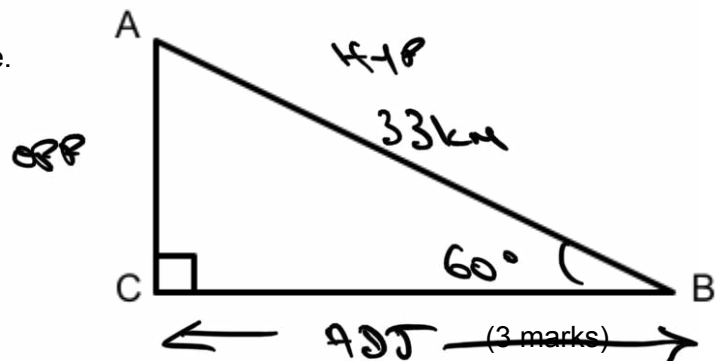
$$\underline{\underline{17.384}}$$

9. The drawing shows a right angled triangle.

AB = 33 km

angle ABC =  $60^\circ$

Find the length of BC.



$$\underline{\underline{16.5 \text{ km}}}$$

Solve CAH TOA

$$\cos 60^\circ = \frac{\text{ADJ}}{33}$$

$$33 \times \cos 60^\circ = \text{ADJ}$$

$$16.5 \text{ km} = \text{ADJ}$$

10. Given that  $a : b = 3 : 5$  and  $b : c = 3 : 5$ .

Find the ratio  $a : b : c$ .

Give your answer in its simplest form.

(2 marks)

$$\begin{array}{l} a : b \qquad b : c \\ 3 : 5 \qquad 3 : 5 \\ \times 3 \left( \begin{array}{l} 3 : 5 \\ \times 3 \end{array} \right) \times 3 \left( \begin{array}{l} 3 : 5 \\ \times 5 \end{array} \right) \times 5 \\ 9 : 15 \qquad 15 : 25 \end{array}$$

$$\begin{array}{l} a : b : c \\ 9 : 15 : 25 \end{array}$$

# QT Quick Test - Grade 5B 5C



11. The equation of the line  $L_1$  is  $3y = 9x - 21$ .

The equation of the line  $L_2$  is  $y - x = 14$ .

Show that these two lines are not parallel.

(3 marks)

$$y = mx + c$$

↑  
gradient

$$L_1 \quad 3y = 9x - 21$$

$$y = 3x - 7$$

Gradient 3

$$L_2 \Rightarrow y - x = 14$$

$$y = 14 + x$$

$$y = 1x + 14$$

Gradient 1

12. Aryan buys a pack of 12 bottles of water.

The pack costs £6.24.

Aryan sells all 12 bottles for 60p each.

Work out Aryan's percentage profit.

Give your answer correct to 1 decimal place.

(4 marks)

$$12 \times 60 = 720$$

$$= \text{£}7.20$$

$$\% \text{ Profit} = \frac{\text{Diff}}{\text{Orig}} = \frac{7.20 - 6.24}{6.24} \times 100$$

$$= 15.3846$$

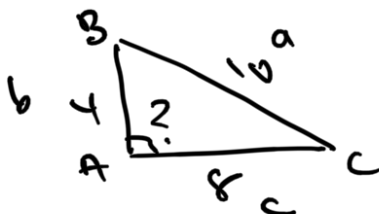
$$= \underline{\underline{15.4\%}}$$

# QT Quick Test - Grade 5



13. Triangle ABC has a perimeter of ~~10~~<sup>22</sup> m.  
 AB = 4 m and BC = 10 m.

Is triangle ABC a right-angled triangle? Show clearly how you decide. (3 marks)



$$a^2 = b^2 + c^2$$

$$10^2 = 4^2 + 8^2 \quad ?$$

$$100 = 16 + 64$$

$$= 80$$

Not a right angle  
 would be equal

14. The formulae show the cost 'C' of a taxi journey of  $x$  miles, with three different companies.

Alpha taxi:  $C = 1.69x + 2$

Bravo taxi:  $C = 1.65x$

Charlie taxi:  $C = 1.2x + 6.5$

Which is the least expensive company to use for a journey of 40 miles?

Show how you get your answer.

(3 marks)

$$\text{Alpha} = 1.69(40) + 2 = 69.60$$

$$\text{Bravo} = 1.65(40) = 66$$

$$\text{Charlie} = 1.2(40) + 6.5 = 54.50$$

$\therefore$  Charlie least expensive.

(Total 40 marks)