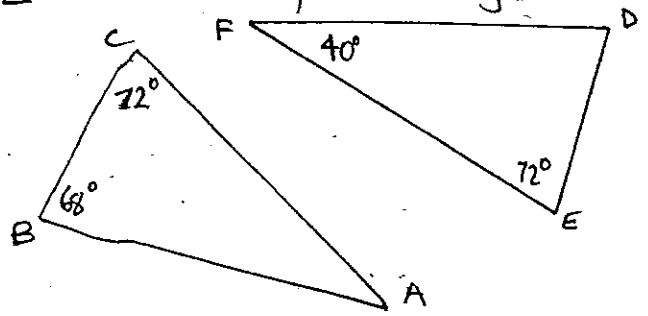
YR 10 TOPIC TEST SIMILARITY (ch8)

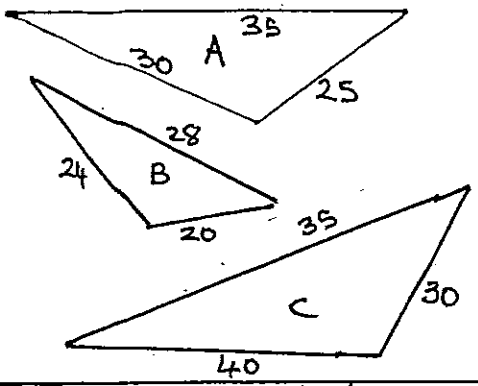
Name:

Mark

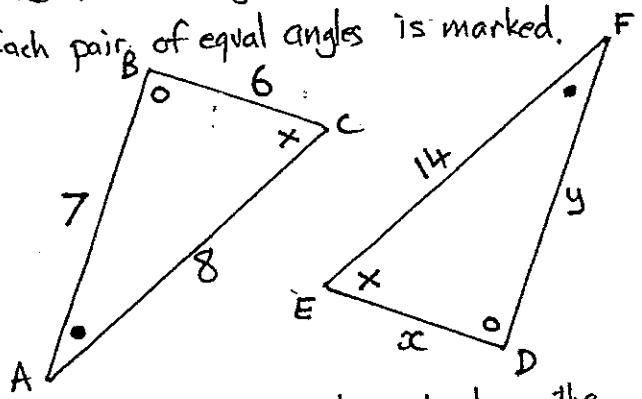
Q1 Give reasons why these triangles are similar.



Q2 These triangles are not drawn to scale.
Which two are similar?



Q3 The two triangles here are similar.
Each pair of equal angles is marked.

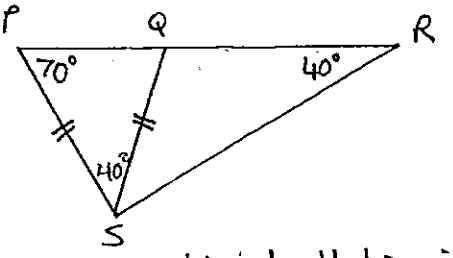


(a) Complete this ratio equation to show the relationship between corresponding sides

$\frac{AB(\ )}{\ldots(\ )} = \frac{BC(\ )}{\ldots(\ )} = \frac{CA(\ )}{\ldots(\ )}$

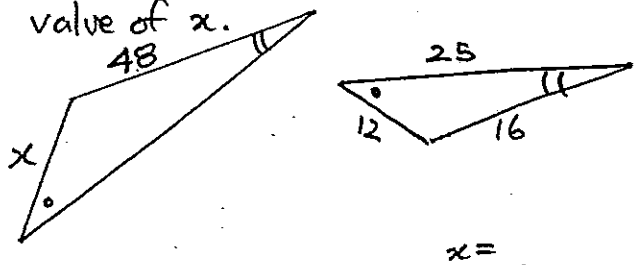
(b) Calculate the lengths marked x and y.

Q4



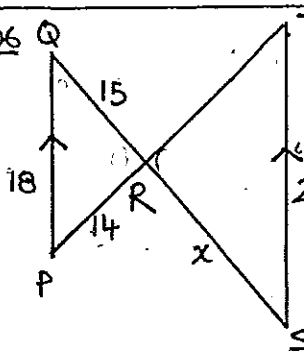
Write down a triangle that is similar to $\triangle PQS$.

Q5 These triangles are similar, find the value of x.



$x =$

Q6



(a) Why does $\angle QRP = \angle SRT$?

(b) Why does $\angle QPR = \angle RTS$?

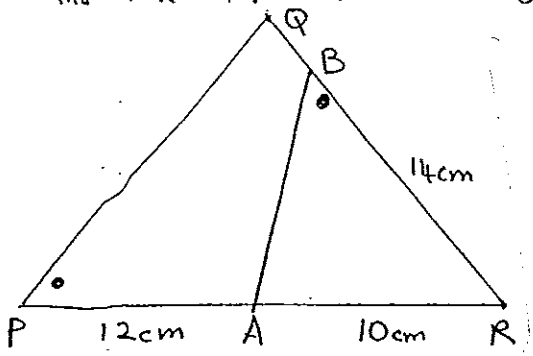
(c) Why are the two triangles similar?

(d) Complete the ratio equation for the sides of the two triangles

$\frac{PQ}{\ldots\ldots} = \frac{PR}{\ldots\ldots} = \frac{\ldots\ldots}{SR}$

(e) Calculate the length of x.

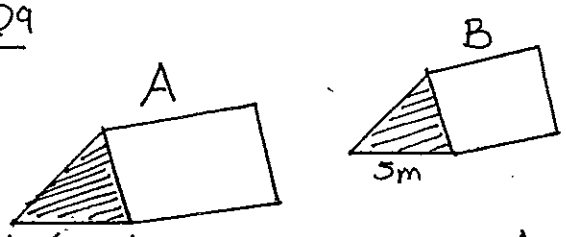
Q7 In the diagram $\angle QPR = \angle ABR$, $AR = 10$ and $BR = 14$. Calculate the length of QR.



(b) Find the volume of A if the volume of B is $100\,cm^3$.

Q8 The sides of a polygon with an area of $15\,cm^2$ are multiplied by 4 to give an enlarged image of the polygon. What is the area of the image?

Q9



Triangular prisms A and B are similar.

(a) Find the ratios of

(i) area of shaded base of A : area of shaded base of B

(ii) volume of A : volume of B

Q10 A chocolatier makes three sizes of rum ball (small, medium and large). They are 3cm, 4cm and 6cm in diameter. The medium one costs 90¢. Using similar figures calculate the prices of the other two sizes to the nearest cent. Assume the rum balls are sold by volume.

YR 10 TOPIC TEST SIMILARITY (Ch8)

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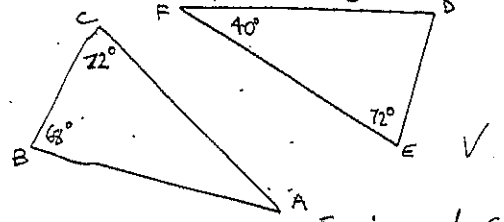
Name: Martin Gusantic

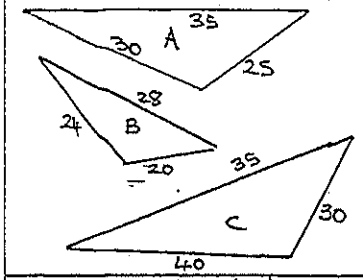
Mark

Q1 Give reasons why these triangles are similar.



Equiangular ✓

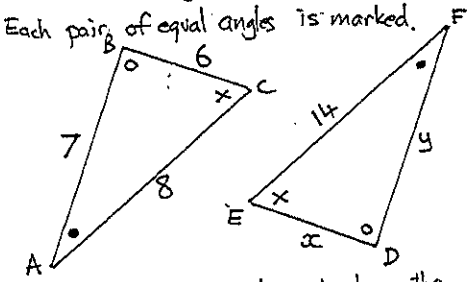
Q2 These triangles are not drawn to scale. Which two are similar?



A & B ✓

$\frac{28}{35} = \frac{24}{30} = \frac{20}{25}$

Q3 The two triangles here are similar. Each pair of equal angles is marked.



(a) Complete this ratio equation to show the relationship between corresponding sides

$\frac{AB(7)}{DF(y)} = \frac{BC(6)}{ED(x)} = \frac{CA(8)}{EF(14)}$ ✓

(b) Calculate the lengths marked x and y.

$\frac{7}{y} = \frac{8}{14}$

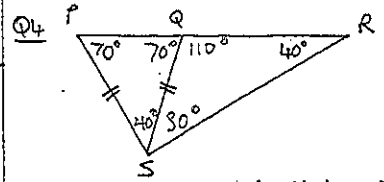
$\frac{6}{x} = \frac{8}{14}$

$y = 12.25$

$x = 10.5$ ✓

$y = 12.25$ ✓

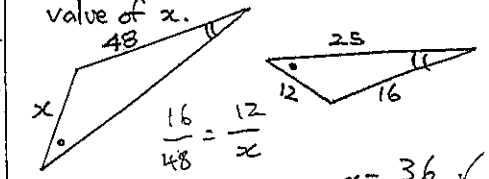
Q4



Write down a triangle that is similar to $\triangle PQS$.

$\triangle PRS$ ✓

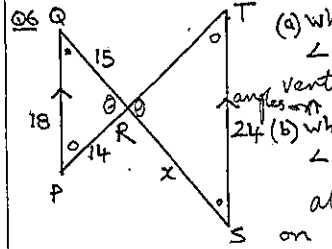
Q5 These triangles are similar, find the value of x.



$\frac{16}{48} = \frac{12}{x}$

$x = 36$ ✓

Q6



(a) Why does $\angle QRP = \angle SRT$?

vertically opposite angles are parallel lines ✓

(b) Why does $\angle QPR = \angle RTS$?

alternate angle on parallel lines ✓

(c) Why are the two triangles similar?

Equiangular ✓

(d) Complete the ratio equation for the sides of the two triangles

$\frac{PQ}{TS} = \frac{PR}{RT} = \frac{QR}{SR}$ ✓

(e) Calculate the length of x.

$\frac{18}{24} = \frac{15}{x}$

$x = 20$ ✓

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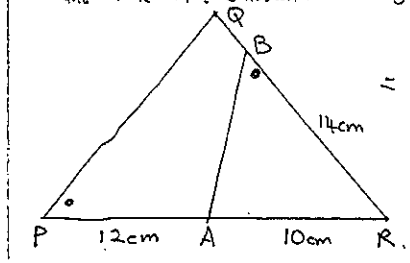
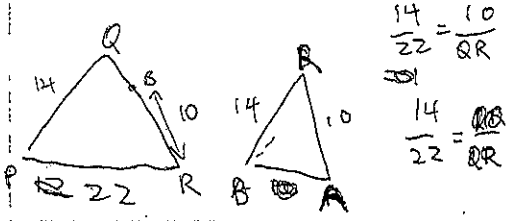
Q7 In the diagram $\angle QPR = \angle ABR$, $AR = 10$ and $BR = 14$. Calculate the length of QR.



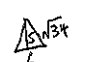
$= 15\frac{5}{7}$ ✓



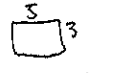
$\frac{14}{22} = \frac{10}{QR}$

$\frac{14}{22} = \frac{QR}{QR}$

Q8 The sides of a polygon with an area of $15cm^2$ are multiplied by 4 to give an enlarged image of the polygon. What is the area of the image?

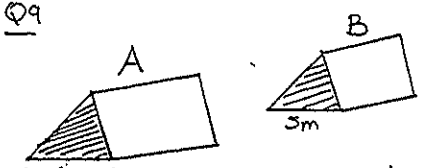


$240cm^2$ ✓



20×12

Q9



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(a) Find the ratios of

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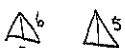


18 : 12 ÷ 5

36 : 25 ✓

(ii) volume of A : volume of B

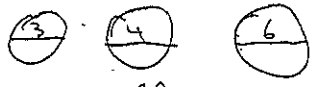
216 : 125 ✓

(b) Find the volume of A if the volume of B is $100cm^3$.

100 : 125 × 216

$A = 172.8cm^3$ ✓

Q10 A chocolatier makes three sizes of rum ball (small, medium and large). They are 3cm, 4cm and 6cm in diameter. The medium one costs 90¢. Using similar figures calculate the prices of the other two sizes to the nearest cent. Assume the rum balls are sold by volume.



90c

$\frac{27}{y} : \frac{64}{90} : \frac{216}{x}$

3cm Diameter = 38c

6cm Diameter = $3.0 OR 304

3 ✓

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