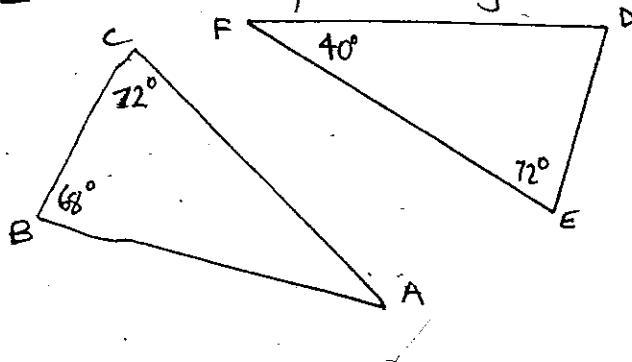


YR 10 TOPIC TEST SIMILARITY (ch 8)

Name:

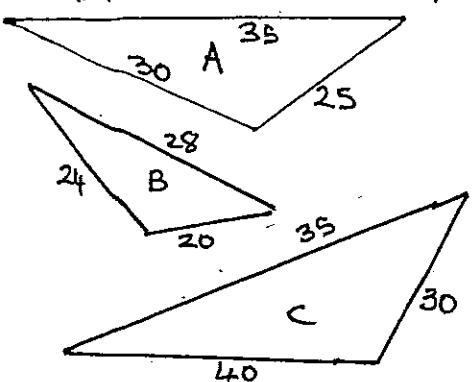
Q1 Give reasons why these triangles are similar.



Mark

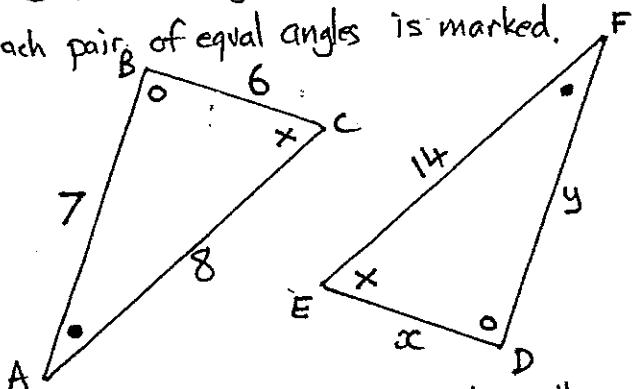
Q2 These triangles are not drawn to scale.

Which two are similar?



Q3 The two triangles here are similar.

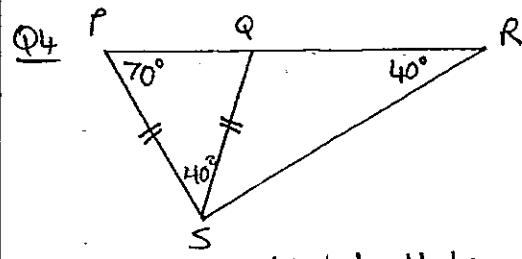
Each pair of equal angles is marked.



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

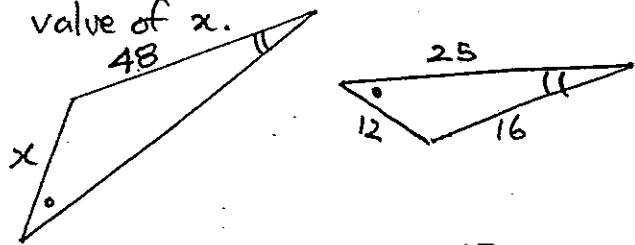
$$\frac{AB()}{...} = \frac{BC()}{...} = \frac{CA()}{...}$$

(b) Calculate the lengths marked x and y .

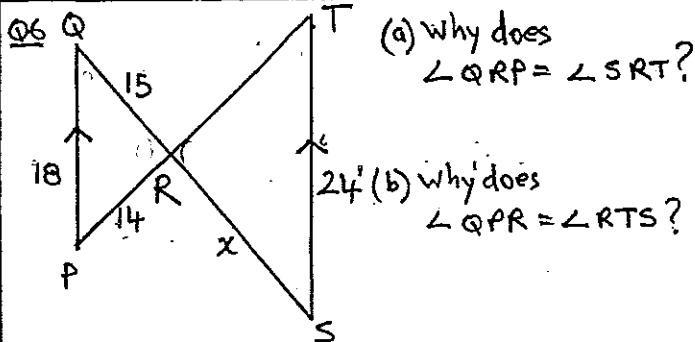


Write down a triangle that is similar to $\triangle PQS$.

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



$$x =$$



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

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

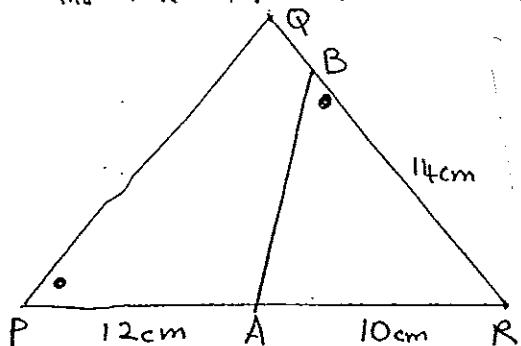
(c) Why are the two triangles similar?

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

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

(e) Calculate the length of x .

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

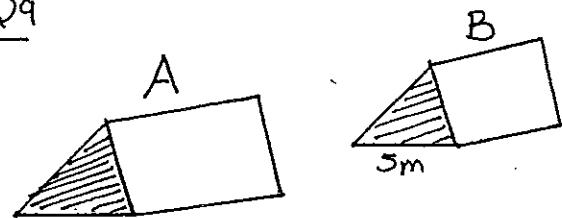


(b) Find the volume of A if the volume of B is 100cm^3 .

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?

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.

Q9



Triangular prisms A and B are similar.

(a) Find the ratios of

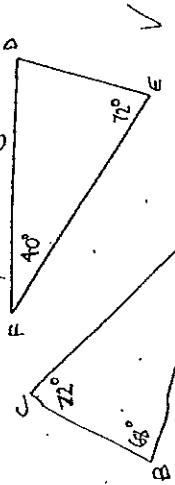
(i) area of shaded base of A : area of shaded base of B

(ii) volume of A : volume of B

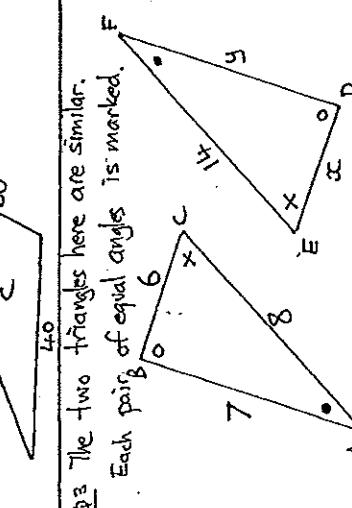
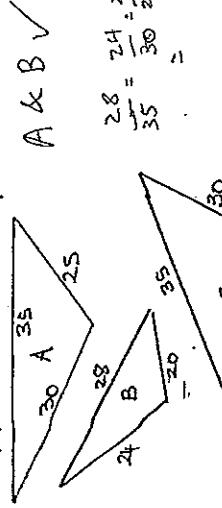
TRIO TOPIC TEST SIMILARITY (CH 8)

22 Name: Martin Susantie

(i) Give reasons why these triangles are similar.



(ii) These triangles are not drawn to scale.
Which two are similar?



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

$$A.B(7) \quad B.C(6) = \frac{C.A(8)}{D.E(4) \cdot E.D(x) \cdot E.F(4)}$$

(iv) Calculate the lengths marked x and y .

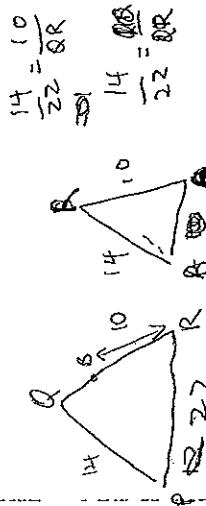
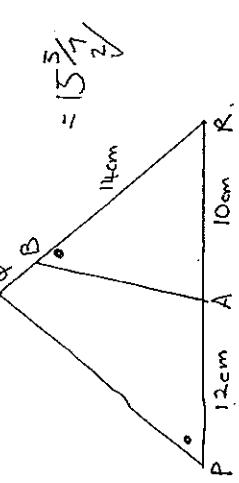
$$\frac{7}{y} = \frac{8}{14}$$

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

$$y = 12.25$$

$$x = 10.5$$

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

$$\frac{1}{2} \times 5 \times 12 = 30 \text{ cm}^2$$

$$\frac{1}{2} \times 20 \times 48 = 480 \text{ cm}^2$$

$$\frac{1}{2} \times 40 \times 96 = 960 \text{ cm}^2$$

$$\frac{1}{2} \times 64 \times 192 = 6144 \text{ cm}^2$$

$$\frac{1}{2} \times 128 \times 384 = 12288 \text{ cm}^2$$

$$\frac{1}{2} \times 256 \times 768 = 25600 \text{ cm}^2$$

$$\frac{1}{2} \times 512 \times 1536 = 51200 \text{ cm}^2$$

$$\frac{1}{2} \times 1024 \times 3072 = 102400 \text{ cm}^2$$

$$\frac{1}{2} \times 2048 \times 6144 = 204800 \text{ cm}^2$$

(Q9) Find the volume of A if the volume of B is 100cm^3 .

$$V = 25 \times 36$$

$$V = 900\text{cm}^3$$

$$100 : 125 \times 216$$

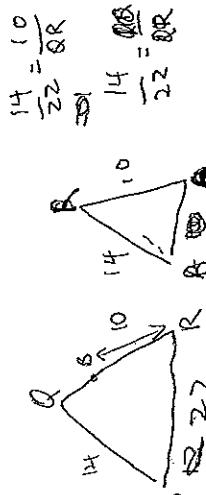
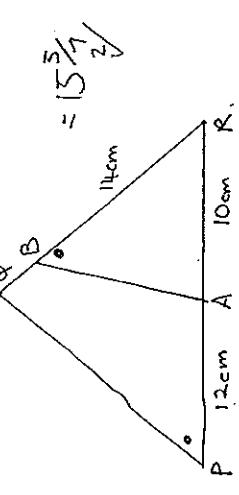
$$A = 172.8\text{cm}^3$$

(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.

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

$$14 = 10$$

(Q11) In the diagram $\angle QPR = \angle ABR$, $AR = 10$ and $BR = 14$. Calculate the length of QR .



(Q12) 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?

$$\frac{1}{2} \times 5 \times 12 = 30 \text{ cm}^2$$

$$\frac{1}{2} \times 20 \times 48 = 480 \text{ cm}^2$$

$$\frac{1}{2} \times 40 \times 96 = 960 \text{ cm}^2$$

$$\frac{1}{2} \times 80 \times 192 = 800 \text{ cm}^2$$

$$\frac{1}{2} \times 160 \times 384 = 1600 \text{ cm}^2$$

$$\frac{1}{2} \times 320 \times 768 = 3200 \text{ cm}^2$$

$$\frac{1}{2} \times 640 \times 1536 = 6400 \text{ cm}^2$$

$$\frac{1}{2} \times 1280 \times 3072 = 12800 \text{ cm}^2$$

$$\frac{1}{2} \times 2560 \times 6144 = 25600 \text{ cm}^2$$

$$\frac{1}{2} \times 5120 \times 12288 = 51200 \text{ cm}^2$$

$$\frac{1}{2} \times 10240 \times 25600 = 102400 \text{ cm}^2$$

$$\frac{1}{2} \times 20480 \times 51200 = 204800 \text{ cm}^2$$

$$\frac{1}{2} \times 40960 \times 102400 = 409600 \text{ cm}^2$$

$$\frac{1}{2} \times 81920 \times 204800 = 819200 \text{ cm}^2$$

$$\frac{1}{2} \times 163840 \times 409600 = 1638400 \text{ cm}^2$$

$$\frac{1}{2} \times 327680 \times 819200 = 3276800 \text{ cm}^2$$

$$\frac{1}{2} \times 655360 \times 1638400 = 6553600 \text{ cm}^2$$

$$\frac{1}{2} \times 1310720 \times 3276800 = 13107200 \text{ cm}^2$$

$$\frac{1}{2} \times 2621440 \times 6553600 = 26214400 \text{ cm}^2$$

$$\frac{1}{2} \times 5242880 \times 13107200 = 52428800 \text{ cm}^2$$

$$\frac{1}{2} \times 10485760 \times 26214400 = 104857600 \text{ cm}^2$$

$$\frac{1}{2} \times 20971520 \times 52428800 = 209715200 \text{ cm}^2$$

$$\frac{1}{2} \times 41943040 \times 104857600 = 419430400 \text{ cm}^2$$

$$\frac{1}{2} \times 83886080 \times 209715200 = 838860800 \text{ cm}^2$$

$$\frac{1}{2} \times 167772160 \times 419430400 = 1677721600 \text{ cm}^2$$

$$\frac{1}{2} \times 335544320 \times 838860800 = 3355443200 \text{ cm}^2$$

$$\frac{1}{2} \times 671088640 \times 1677721600 = 6710886400 \text{ cm}^2$$

$$\frac{1}{2} \times 1342177280 \times 3355443200 = 13421772800 \text{ cm}^2$$

$$\frac{1}{2} \times 2684354560 \times 6710886400 = 26843545600 \text{ cm}^2$$

$$\frac{1}{2} \times 5368709120 \times 13421772800 = 53687091200 \text{ cm}^2$$

$$\frac{1}{2} \times 10737418240 \times 26843545600 = 107374182400 \text{ cm}^2$$

$$\frac{1}{2} \times 21474836480 \times 53687091200 = 214748364800 \text{ cm}^2$$

$$\frac{1}{2} \times 42949672960 \times 107374182400 = 429496729600 \text{ cm}^2$$

$$\frac{1}{2} \times 85899345920 \times 214748364800 = 858993459200 \text{ cm}^2$$

$$\frac{1}{2} \times 171798691840 \times 429496729600 = 1717986918400 \text{ cm}^2$$

$$\frac{1}{2} \times 343597383680 \times 858993459200 = 3435973836800 \text{ cm}^2$$

$$\frac{1}{2} \times 687194767360 \times 1717986918400 = 6871947673600 \text{ cm}^2$$

$$\frac{1}{2} \times 1374389534720 \times 3435973836800 = 13743895347200 \text{ cm}^2$$

$$\frac{1}{2} \times 2748779069440 \times 6871947673600 = 27487790694400 \text{ cm}^2$$

$$\frac{1}{2} \times 5497558138880 \times 13743895347200 = 54975581388800 \text{ cm}^2$$

$$\frac{1}{2} \times 10995116277600 \times 27487790694400 = 109951162776000 \text{ cm}^2$$

$$\frac{1}{2} \times 21990232555200 \times 54975581388800 = 219902325552000 \text{ cm}^2$$

$$\frac{1}{2} \times 43980465110400 \times 10995116277600 = 439804651104000 \text{ cm}^2$$

$$\frac{1}{2} \times 87960930220800 \times 21990232555200 = 879609302208000 \text{ cm}^2$$

$$\frac{1}{2} \times 175921860441600 \times 43980465110400 = 1759218604416000 \text{ cm}^2$$

$$\frac{1}{2} \times 351843720883200 \times 87960930220800 = 3518437208832000 \text{ cm}^2$$

$$\frac{1}{2} \times 703687441766400 \times 175921860441600 = 7036874417664000 \text{ cm}^2$$

$$\frac{1}{2} \times 1407374883532800 \times 351843720883200 = 14073748835328000 \text{ cm}^2$$

$$\frac{1}{2} \times 2814749767065600 \times 703687441766400 = 28147497670656000 \text{ cm}^2$$

$$\frac{1}{2} \times 5629499534131200 \times 1407374883532800 = 56294995341312000 \text{ cm}^2$$

$$\frac{1}{2} \times 11258999068262400 \times 2814749767065600 = 112589990682624000 \text{ cm}^2$$

$$\frac{1}{2} \times 22517998136524800 \times 5629499534131200 = 225179981365248000 \text{ cm}^2$$

$$\frac{1}{2} \times 45035996273049600 \times 11258999068262400 = 450359962730496000 \text{ cm}^2$$

$$\frac{1}{2} \times 90071992546099200 \times 22517998136524800 = 900719925460992000 \text{ cm}^2$$

$$\frac{1}{2} \times 180143985092198400 \times 45035996273049600 = 1801439850921984000 \text{ cm}^2$$

$$\frac{1}{2} \times 360287970184396800 \times 90071992546099200 = 3602879701843968000 \text{ cm}^2$$

$$\frac{1}{2} \times 720575940368793600 \times 180143985092198400 = 7205759403687936000 \text{ cm}^2$$

$$\frac{1}{2} \times 1441151880737587200 \times 360287970184396800 = 14411518807375872000 \text{ cm}^2$$

$$\frac{1}{2} \times 2882303761475174400 \times 720575940368793600 = 28823037614751744000 \text{ cm}^2$$

$$\frac{1}{2} \times 5764607522950348800 \times 1441151880737587200 = 57646075229503488000 \text{ cm}^2$$

$$\frac{1}{2} \times 11529215045900697600 \times 2882303761475174400 = 115292150459006976000 \text{ cm}^2$$

$$\frac{1}{2} \times 23058430091801395200 \times 5764607522950348800 = 230584300918013952000 \text{ cm}^2$$

$$\frac{1}{2} \times 46116860183602790400 \times 11529215045900697600 = 461168601836027904000 \text{ cm}^2$$

$$\frac{1}{2} \times 92233720367205580800 \times 23058430091801395200 = 922337203672055808000 \text{ cm}^2$$

$$\frac{1}{2} \times 184467440734411161600 \times 46116860183602790400 = 1844674407344111616000 \text{ cm}^2$$

$$\frac{1}{2} \times 368934881468822323200 \times 92233720367205580800 = 3689348814688223232000 \text{ cm}^2$$

$$\frac{1}{2} \times 737869762937644646400 \times 184467440734411161600 = 7378697629376446464000 \text{ cm}^2$$

$$\frac{1}{2} \times 1475739525875289292800 \times 368934881468822323200 = 14757395258752892928000 \text{ cm}^2$$

$$\frac{1}{2} \times 2951479051750578585600 \times 737869762937644646400 = 29514790517505785856000 \text{ cm}^2$$

$$\frac{1}{2} \times 5902958103501157171200 \times 1475739525875289292800 = 59029581035011571712000 \text{ cm}^2$$

$$\frac{1}{2} \times 11805916207002314342400 \times 2951479051750578585600 = 118059162070023143424000 \text{ cm}^2$$

$$\frac{1}{2} \times 23611832414004628684800 \times 5902958103501157171200 = 236118324140046286848000 \text{ cm}^2$$

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$$\frac{1}{2} \times 755578637248148117913600 \times 188894659312037029478400 = 7555786372481481179136000 \text{ cm}^2$$

$$\frac{1}{2} \times 1511157274496296235827200 \times 377789318624074058956800 = 15111572744962962358272000 \text{ cm}^2$$

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$$\frac{1}{2} \times 6044629097985184943308800 \times 1511157274496296235827200 = 60446290979851849433088000 \text{ cm}^2$$

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