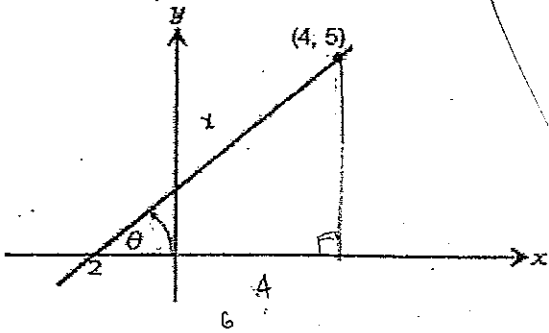


(BRIGIDINE - Yr10) - 2011  
 Trigonometry Test - Mr. Milanov

Question 1



Determine  $\theta$  correct to the nearest minute.

$\theta = \boxed{\phantom{00}}^\circ \boxed{\phantom{00}}'$

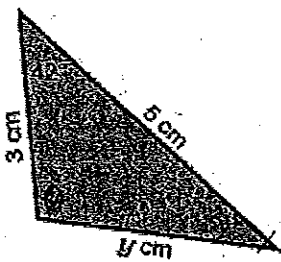
Question 2

$\sin \theta = 0.6782$  (correct to 4 decimal places)

To the nearest degree, angle  $\theta$  can equal:

- a)  only  $43^\circ$
- b)  only  $137^\circ$
- c)   $43^\circ$  or  $137^\circ$

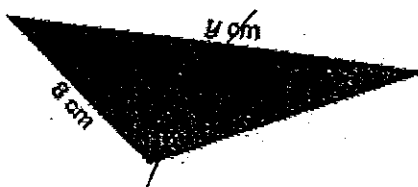
Question 3



Determine the value of  $y$  correct to one decimal place.

$y = \boxed{\phantom{00}} (to 1 \text{ decimal place})$

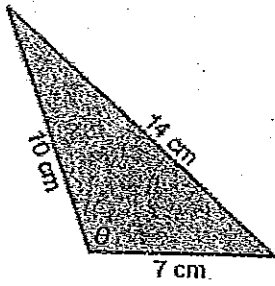
Question 4



Calculate the value of  $y$  correct to one decimal place.

$y = \boxed{\phantom{00}} (to 1 \text{ decimal place})$

Question 5



Calculate the size of angle  $\theta$  to the nearest degree.

Angle  $\theta =$   (to nearest degree)

Question 6

In triangle PQR,  $\sin Q = \frac{2}{3}$ ,  $\sin P = \frac{1}{4}$  and  $p = 12$  cm.

What is the value of  $q$ ?

$q =$   cm

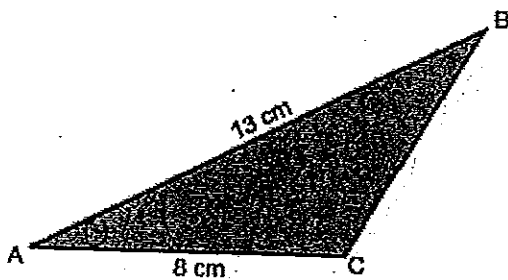
Question 7

In triangle ABC,  $AB = 13$  cm,  $AC = 12$  cm and  $\angle B = 53^\circ$ .

The size of  $\angle C$  to the nearest degree is:

- a)   $60^\circ$
- b)   $60^\circ$  or  $120^\circ$
- c)   $133^\circ$
- d)   $47^\circ$  or  $133^\circ$

Question 8



If  $\cos A = \frac{12}{13}$ , determine the exact length of BC.

$BC = \sqrt{\text{}}$  cm

Question 9

In a triangle, one side is 22 cm long and the angle opposite is  $65^\circ$ .

What is the size of the angle opposite a side of 19 cm?

- a)   $52^\circ$
- b)   $128^\circ$
- c)   $52^\circ$  or  $128^\circ$

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Question 10

From an observation tower, Mount Anderson is 23 km away on a bearing of  $N23^\circ E$ .

From the same tower, Mount Wilmont is 19 km away on a bearing of  $S55^\circ E$ .

How many kilometres is Mount Anderson from Mount Wilmont, correct to *one decimal place*?

Distance between mountains =  km (to one decimal place)

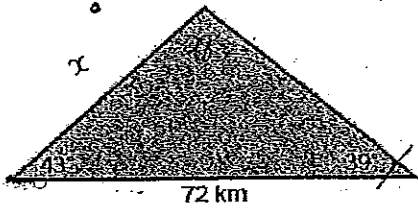
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Question 11

A park ranger in a tower spotted a bush fire in the direction  $S40^\circ E$ . Seven kilometres to the east of the tower, another ranger saw the fire in the direction  $S30^\circ W$ .

How far is the fire from the tower to two significant figures?

Distance =  km (to 2 significant figures)



Calculate the area of this triangle to the nearest square kilometre.

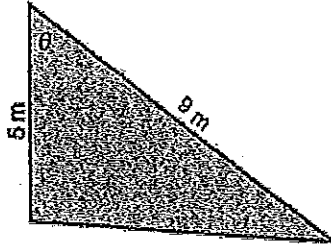
Area =  km<sup>2</sup> (to nearest sq km)

Question 13

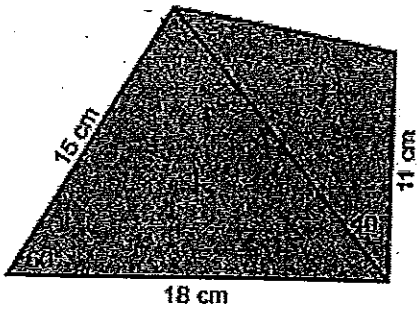
The area of the triangle is 18 m<sup>2</sup>.

Calculate the value of  $\theta$  correct to the nearest degree.

$\theta =$   ° (to nearest degree)



Question 14



What is the area of this quadrilateral to the nearest square centimetre?

Area =  cm<sup>2</sup> (correct to nearest cm<sup>2</sup>)

Question 15

In  $\triangle ABC$ ,  $a = 20$  cm,  $b = 32$  cm and  $c = 45$  cm.

Determine the size of the largest angle to the nearest degree.

Largest angle =  ° (to nearest degree)

Question 16

Granville is 437 km from Wentworth on a bearing of  $125^\circ$ .

Pittown is 1090 km from Wentworth on a bearing of  $084^\circ$ .

Calculate the distance from Granville to Pittown to the nearest kilometre.

Distance =  km (to nearest km)

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Question 17

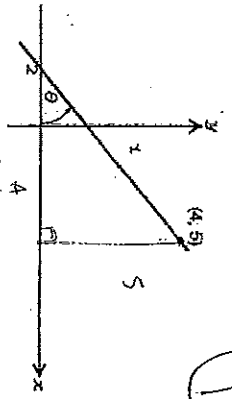
Sam walks 4.5 km along a straight bush track, then turns  $40^\circ$  and walks a further 3.8 km in a straight line.

How far is he from his starting point?

Answer correct to 1 decimal place.

Distance from start =  km (to 1 decimal place)

Question 1



$\tan \theta = \frac{5}{4}$   
 $\tan \theta = \frac{5}{4}$   
 $\theta = 51^\circ 20'$   
 $\theta = 39^\circ 48''$



Determine  $\theta$  correct to the nearest minute.  
 $\theta = 51^\circ 20'$      $39^\circ 48'$

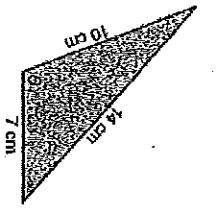
Question 2

$\sin \theta = 0.6782$  (correct to 4 decimal places)  
 To the nearest degree, angle  $\theta$  can equal:

- a)  only  $43^\circ$
- b)  only  $137^\circ$
- c)   $43^\circ$  or  $137^\circ$

$\sin \theta = \frac{\text{opp}}{\text{hyp}} = \frac{61}{90}$   
 $\theta = 39^\circ 48''$

Question 5

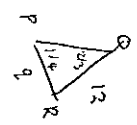


Calculate the size of angle  $\theta$  to the nearest degree.  
 Angle  $\theta = 110^\circ$  (to nearest degree)

$\cos \theta = \frac{10^2 + 7^2 - 14^2}{2 \times 10 \times 7}$   
 $= \frac{-47}{140}$   
 $\cos^{-1} \left( \frac{-47}{140} \right)$   
 $\theta = 109^\circ 36' 57.52''$   
 $\theta = 110^\circ$

Question 6

In triangle PQR,  $\sin Q = \frac{2}{3}$ ,  $\sin P = \frac{1}{4}$  and  $p = 12$  cm.  
 What is the value of  $q$ ?  
 $q = 32$  cm

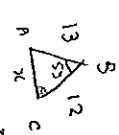


$\frac{q}{12} = \frac{1}{4}$   
 $q = 12 \times \frac{1}{4}$   
 $q = 3$

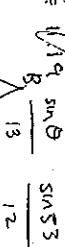
Question 7

In triangle ABC,  $AB = 13$  cm,  $AC = 12$  cm and  $\angle B = 53^\circ$ .  
 The size of  $\angle C$  to the nearest degree is:

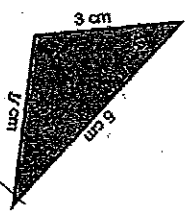
- a)   $60^\circ$
- b)   $60^\circ$  or  $120^\circ$
- c)   $133^\circ$
- d)   $47^\circ$  or  $133^\circ$



$13^2 = 12^2 + BC^2 - 2 \times 12 \times BC \times \cos 53^\circ$   
 $13^2 = 11.19$   
 $BC = 11.19$   
 $\sin \theta = \frac{12}{13}$   
 $\theta = 67^\circ$

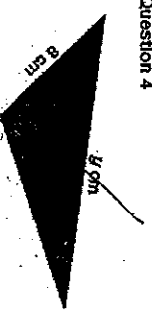


Question 3  
 Determine the value of  $y$  correct to one decimal place.  
 $y = 3.4$



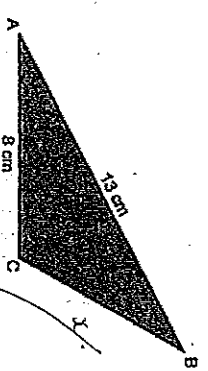
$8^2 = 5^2 + y^2 - 2 \times 5 \times y \times \cos 42^\circ$   
 $y = 3.4214$   
 $\approx 3.4$

Question 4



Calculate the value of  $y$  correct to one decimal place.  
 $y = 16 \cdot 4$

Question 8



If  $\cos A = \frac{13}{13}$ , determine the exact length of BC.  
 $BC^2 = 13^2 + 8^2 - 2 \times 13 \times 8 \times \cos 13^\circ$   
 $BC = 41$

Question 9

In a triangle, one side is 22 cm long and the angle opposite is 66°.

What is the size of the angle opposite a side of 19 cm?

a) 52°  
 b) 128°  
 c) 52° or 128°

$\sin \theta = \frac{\sin 65}{19} = \frac{22}{19}$   
 $\theta = \sin^{-1} \left( \frac{22}{19} \right) \times 19$   
 $\theta = 51.505716^\circ$

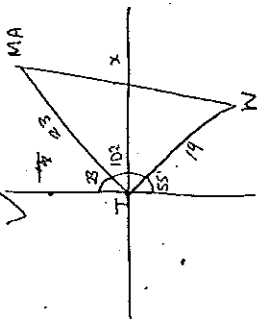
Question 10

From an observation tower, Mount Anderson is 23 km away on a bearing of N23°E.

From the same tower, Mount Wilmont is 19 km away on a bearing of S55°E.

How many kilometres is Mount Anderson from Mount Wilmont, correct to one decimal place?

Distance between mountains = 32.7 km (to one decimal place)

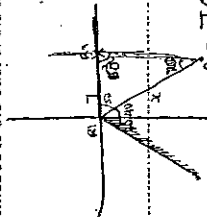


Question 11

A park ranger in a tower spotted a bush fire in the direction S40°E. Seven kilometres to the east of the tower, another ranger saw the fire in the direction S30°W.

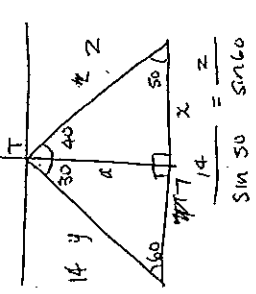
How far is the fire from the tower to two significant figures?

Distance = 6.5 km (to 2 significant figures)

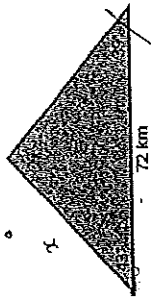


$\cos 60 = \frac{7}{y}$   
 $y = 14$

$z = \frac{12.124356}{\sin 40} = \frac{z}{\sin 40}$   
 $z = 15.82727 = \frac{z}{\sin 40}$   
 $z = 6.5$



$z = \frac{12.124356}{\sin 40}$   
 $z = 6.5$



$\frac{72}{\sin 98} = \frac{x}{\sin 43}$   
 $x = \frac{72}{\sin 98} \times \sin 43 = 39$

Calculate the area of this triangle to the nearest square kilometre.

Area =  $\frac{1}{2} \times 72 \times 39 \sin 43 = 1123$  km<sup>2</sup> (to nearest sq km)

Question 13

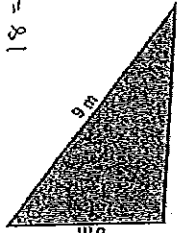
$A = \frac{1}{2} ab \sin C$

$18 = \frac{1}{2} \times 5 \times 9 \sin \theta$

$\sin \theta = \frac{(18 \times 2)}{(5 \times 9)}$

$\theta = \sin^{-1} \left( \frac{4}{5} \right)$

$\theta = 53^\circ$

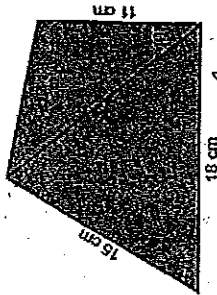


The area of the triangle is 18 m<sup>2</sup>.

Calculate the value of theta correct to the nearest degree.

theta = 53° (to nearest degree)

Question 14



What is the area of this quadrilateral to the nearest square centimetre?

Area = 176 cm<sup>2</sup> (correct to nearest cm<sup>2</sup>)

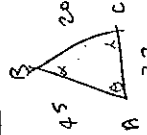
$1 = \frac{1}{2} \times 15 \times 18 \times \sin 60 = 116.9134295$   
 $11 = \frac{1}{2} \times 11 \times 16,70329509 \times \sin 40 = 59.0517$   
 $(1 + 11) = 116.9134 + 59.0517 = 176$

Question 15

In triangle ABC, a = 20 cm, b = 32 cm and c = 45 cm.

Determine the size of the largest angle to the nearest degree.

Largest angle = 118° (to nearest degree)



$\theta = \frac{45^2 + 32^2 - 20^2}{2 \times 45 \times 32} = 23^\circ$   
 $\alpha = 118^\circ$   
 $\alpha = 39^\circ$   
 $\alpha = 38^\circ 53'$   
 $= 39^\circ$

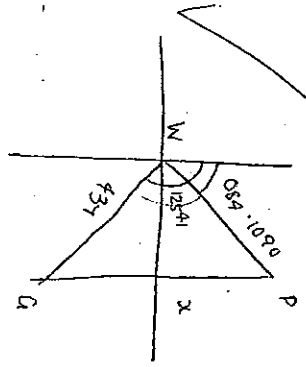
Question 16

\* Granville is 437 km from Wentworth on a bearing of  $125^\circ$ .

Pittown is 1090 km from Wentworth on a bearing of  $094^\circ$ .

Calculate the distance from Granville to Pittown to the nearest kilometre.

Distance = 812 km (to nearest km)



$$125 - 94 = 31$$

$$x^2 = 437^2 + 1090^2 - 2 \times 437 \times 1090 \cos 31$$

$$\sqrt{x^2} = \sqrt{660087.3713}$$

$$x = 812.457612$$

$$\approx 812$$

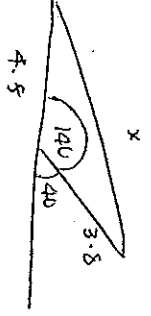
Question 17

Sam walks 4.5 km along a straight bush track, then turns  $40^\circ$  and walks a further 3.8 km in a straight line.

How far is he from his starting point?

Answer correct to 1 decimal place

Distance from start = 7.8 km (to 1 decimal place)



$$x^2 = 4.5^2 + 3.8^2 - 2 \times 4.5 \times 3.8 \times \cos 40$$

$$x^2 = 60.88871993$$

$$x = 7.8$$