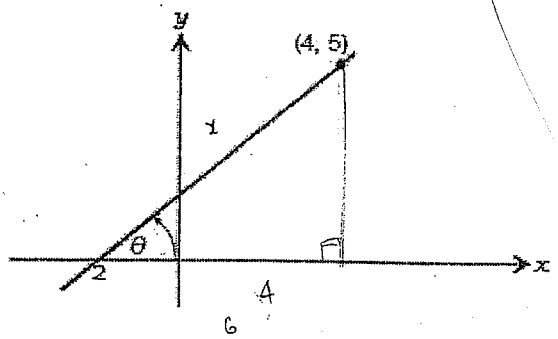
(BRIGIDINE - Yr 10) - 2011

Trigonometry Test - Mr. Milanov

Question 1



Determine θ correct to the ***nearest minute***.

$\theta =$ ☐ ° ☐ ′

Question 2

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

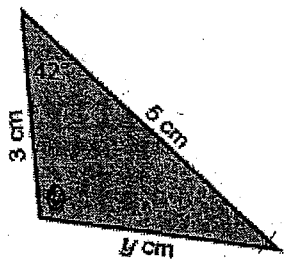
To the nearest degree, angle θ can equal:

a) ◉ only 43°

b) ◉ only 137°

c) ○ 43° or 137°

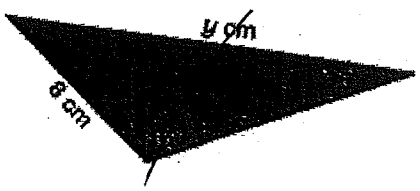
Question 3



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

$y =$ ☐ (to 1 decimal place)

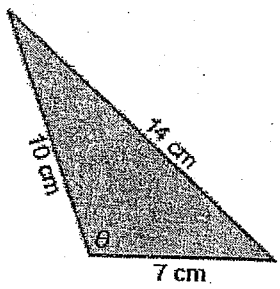
Question 4



Calculate the value of y correct to one decimal place.

$y =$ ☐ (to 1 decimal place)

Question 5



Calculate the size of angle θ to the ***nearest degree.***

Angle θ = ☐ (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 $\angle B = 53°$.

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

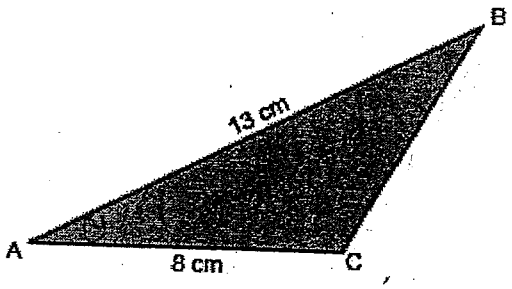
a) ◉ 60°

b) ○ 60° or 120°

c) ◉ 133°

d) ◉ 47° or 133°

Question 8



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

BC = $\sqrt{\square}$ cm

Question 9

In a triangle, one side is 22 cm long and the angle opposite is 65°.

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

a) ○ 52°

b) ◉ 128°

c) ◉ 52° or 128°

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***?

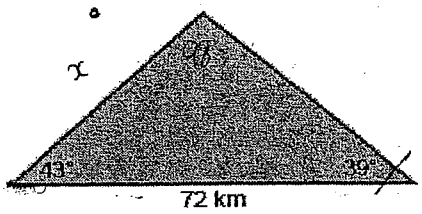
Distance between mountains = ☐ km (to one decimal place)

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 = ☐ km (to 2 significant figures)



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

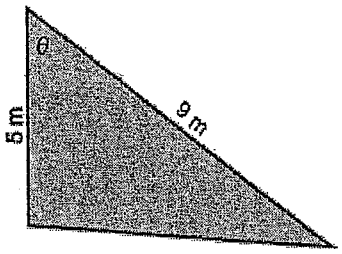
Area = [ ] km^2 (to nearest sq km)

Question 13

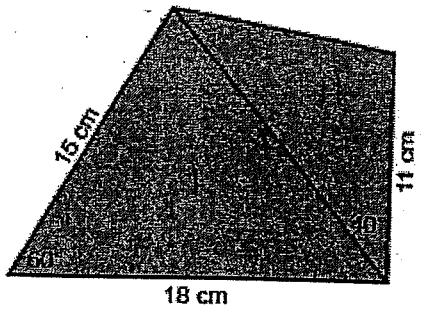
The area of the triangle is 18 m^2.

Calculate the value of θ correct to the nearest degree.

θ = [ ] ° (to nearest degree)



Question 14



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

Area = [ ] cm^2 (correct to nearest cm^2)

Question 15

In ΔABC, 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°.

Pittown is 1090 km from Wentworth on a bearing of 084°.

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

Distance = ☐ km (to nearest km)

Question 17

Sam walks 4.5 km along a straight bush track, then turns 40° 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.

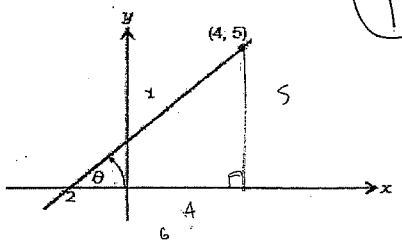
Distance from start = ☐ km (to 1 decimal place)

(BRIGIDINE - Yr 10)

Trigonometry Test - Mr. Milanov

15/17 FAB!!

Question 1



Determine θ correct to the ***nearest minute***.

$\theta =$ [51]° [20]' ✓

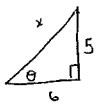
Tan θ = 5/4

Tan θ = 5/6

θ = 39°48'

39° 48'

θ = 51° 20'



$5^2 + 6^2 = x^2$

$x^2 = 61$

$x = \sqrt{61}$

$\frac{\sin\theta}{5} = \frac{\sin 90}{\sqrt{61}}$

$\sin\theta = \frac{5 \sin 90}{\sqrt{61}}$

θ = 0.64018

θ = 39°48°

Question 2

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

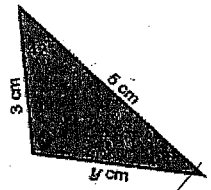
To the nearest degree, angle θ can equal:

a) only 43°

b) only 137°

c) 43° or 137° ✓

Question 3



$y^2 = 3^2 + 5^2 - 2 \times 3 \times 5 \cos 42$

$\sqrt{y^2} = \sqrt{11.70565524}$

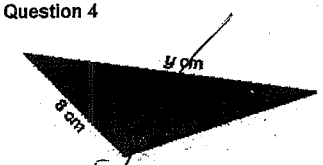
$y = 3.4214$

≈ 3.4

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

$y =$ [3.4] (to 1 decimal place)

Question 4



180 - 116 - 26 = 38

$\frac{8}{\sin 26} = \frac{y}{\sin 116}$

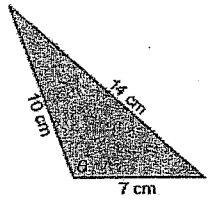
$y = \frac{8}{\sin 26} \times \sin 116$

y = 16.4

Calculate the value of y correct to one decimal place.

$y =$ [16.4] (to 1 decimal place)

Question 5



$\cos\theta = \frac{10^2 + 7^2 - 14^2}{2 \times 10 \times 7}$

$= \frac{-47}{140}$

$\cos^{-1}\left(\frac{-47}{140}\right)$

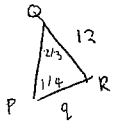
θ = 109° 36' 57.52"

θ = 110°

Calculate the size of angle θ to the ***nearest degree***.

Angle $\theta =$ [110°] (to nearest degree)

Question 6



$\frac{q}{2/3} = \frac{12}{1/4}$

$q = \frac{12}{1/4} \times 2/3$

q = 32

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 ✓

Question 7

In triangle ABC, AB = 13 cm, AC = 12 cm and ∠B = 53°.

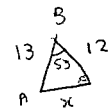
The size of ∠C to the nearest degree is:

a) 60° ✗

b) 60° or 120°

c) 133°

d) 47° or 133°



$x^2 = 13^2 + 12^2 - 2 \times 13 \times 12 \cos 53$

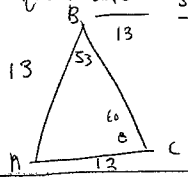
$x = 11.19078696$

$x = 11.19$

$\frac{\sin\theta}{13} = \frac{\sin 53}{11.19}$

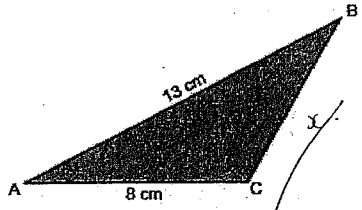
$\theta = \frac{\sin 53}{11.19} \times 13$

$\theta =$



$\frac{\sin\theta}{13} = \frac{\sin 53}{12}$

Question 8



$x^2 = 13^2 + 8^2 - 2 \times 13 \times 8 \times \left(\frac{12}{13}\right)$

$= 41$

$x = \sqrt{24.47440765}$

$x = \sqrt{41}$

$x^2 = 13^2 + 8^2 - 2 \times 13 \times 8 \times \cos A$

$x^2 = 13^2 + 8^2 - 2 \times 13 \times 8 \times \frac{12}{13}$

$x^2 = 41$

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

Question 9

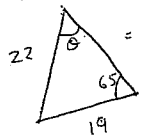
In a triangle, one side is 22 cm long and the angle opposite is 65°.

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

a) ◉ 52°

b) ○ 128°

c) ○ 52° or 128°



$\frac{\sin\theta}{19} = \frac{\sin 65}{22}$

$\theta = \frac{\sin 65}{22} \times 19$

$\theta = 51°30'37.18''$

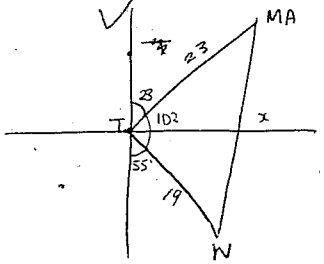
Question 10

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)



$180 - 23 - 55 = 102$

$x^2 = 23^2 + 19^2 - 2 \times 23 \times 19 \cos 102$

$x^2 = 1071.714818$

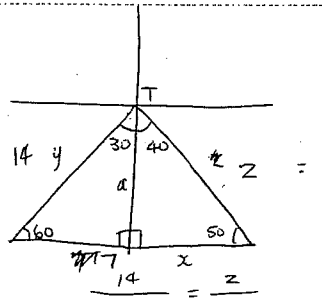
$x = 32.7$

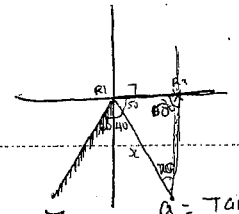
Question 11

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)





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

$y = 14$

$\frac{14}{\sin 50} = \frac{z}{\sin 60}$

$z = 15.82727 = \frac{x}{\sin 90} \cdot \sin 60$

$\tan 50 = \frac{12.124356}{x}$

$\tan 60 = \frac{a}{7}$

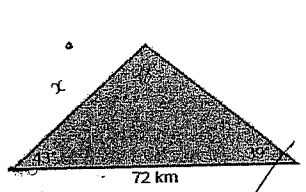
$a = 12.124356$

$\frac{x}{\sin 60} = \frac{7}{\sin 70}$

$x = \frac{7 \sin 60}{\sin 70}$

$\frac{x}{\sin 100} = \frac{7}{\sin 30}$

$x = \frac{\sin 30 \times 7}{\sin 100}$



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

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

$x = 49.58645389$

$x = 45.76$

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

Area = [1123] km^2 (to nearest sq km)

$A = \frac{1}{2} \times 49.59 \times 72 \sin 43$

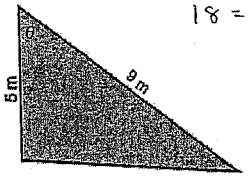
$A = 1123.449688$

Question 13

The area of the triangle is 18 m^2.

Calculate the value of θ correct to the nearest degree.

θ = [53] ° (to nearest degree)



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

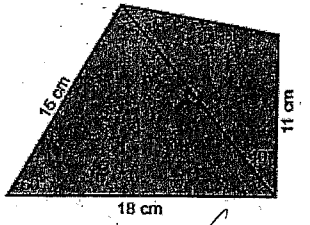
$18 = \frac{1}{2} \times 5 \times 9 \sin\theta$

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

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

$\theta = 53°$

Question 14



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

Area = [176] cm^2 (correct to nearest cm^2)

$1 = \frac{1}{2} \times 15 \times 18 \times \sin 60$

$= 116.9134295$

$11 = \frac{1}{2} \times 11 \times 16.70329809 \times \sin 40$

$= 59.05168911$

$(1 + 11) = (116.9134 + 59.0517)$

$= 176.$

$x^2 = 15^2 + 18^2 - 2 \times 15 \times 18 \cos 60$

$x^2 = 279$

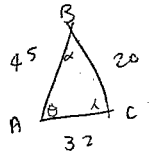
$x = 16.70329309$

Question 15

In ΔABC, 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)



$\theta = \frac{45^2 + 32^2 - 20^2}{2 \times 45 \times 32}$

$= 23°$

$\theta = 23$

$\lambda = 118°$

$\alpha = 39°$

$\alpha = 38°53'$

$= 39°$

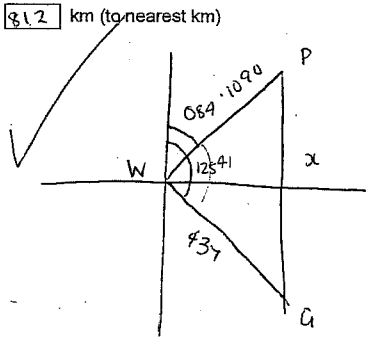
Question 16

Granville is 437 km from Wentworth on a bearing of 125°.

Pittown is 1090 km from Wentworth on a bearing of 084°.

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

Distance = 812 km (to nearest km)



$125 - 84$

$= 41$

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

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

$x = 812.457612$

≈ 812

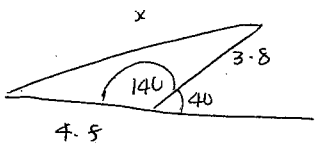
Question 17

Sam walks 4.5 km along a straight bush track, then turns 40° 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)



$x^2 = 4.5^2 + 3.8^2 - 2 \times 4.5 \times 3.8 \times \cos 1$

$x^2 = 60.8887193$

$x = 7.8$