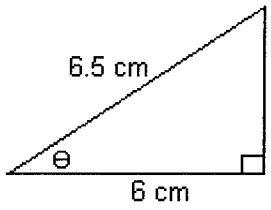
EXERCISES – Trigonometry

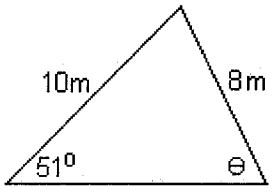
Name: _____

1. Find (a) the angle θ and ...

   (b) the area of the triangle



2. Find the angle θ



3. Simplify (a) $\dfrac{Tan\ x}{\sqrt{1 - Cos^2 x}}$

   (b) Cot x . Cos(90-x)

4. A ship sails due East for 20 miles, then sails 30 miles at bearing 155°

   Find:

   (a) How far the ship is from its original position, P.

   (b) Its final bearing from P.

5. Give <u>exact</u> values for the following:-

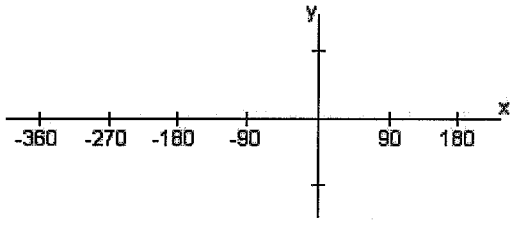
(a) Tan 30°

(b) Sin 300°

(c) Cos (-135°)

6. (a) Sketch the graph of $y = \text{Cos } x$

for $-360^\circ < x \leq 180^\circ$



(b) (Refer to your graph to answer this question.)
How many solutions does $\text{Cos } x = -1$ have
for the domain $-360^\circ < x \leq 180^\circ$

7. (a) Convert 330° to Radians

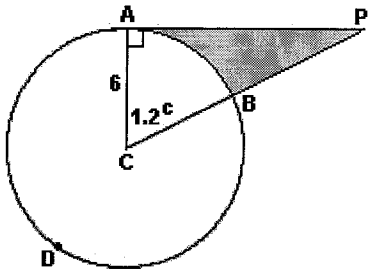
(b) Convert 2.15 radians to degrees.

8. (a) Solve for $0^\circ \leq x < 360^\circ$: $\text{Cos } x = \frac{1}{3}$

(b) Solve for $0 \leq x < 2\pi$: $2\,\text{Tan } x + 5 = 0$

9. In the diagram below:-

AC = CB = 6cm and $\angle CAP = 90^\circ$



Find (a) the arc length AB

(b) the arc length ADB

(c) the length AP

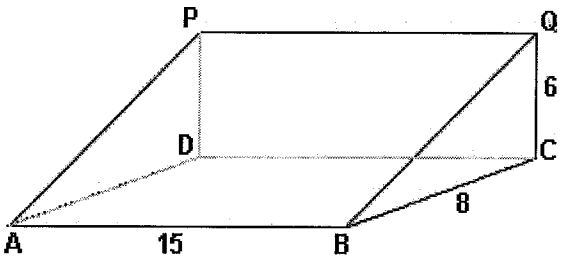
(d) the area of the APC

(e) the area of the Sector CAB

(f) the Shaded area.

10. The following diagram is a triangular prism with:-

AB = 15m ; BC = 8m ; QC = 6m and $\angle QCB = 90^\circ$



Find (a) the length QB

(b) the length BD

(c) the length DQ

(d) the angle $\angle QDC$

(e) the angle $\angle QDB$

SOLUTIONS – Ex-Trigonometry

Qu①

(a) $22°37'$

(b) $7.5\ cm^2$

Qu②

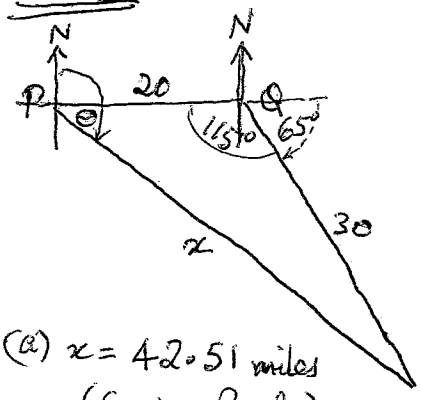
$76°16'$ (or $103°44'$)

Qu③

(a) $\sec x$

(b) $\cos x$

Qu④



(a) $x = 42.51$ miles

(b) (Cosine Rule)

$\angle QPR = \theta = 39°46'$

$\therefore$ Bearing $= 129°46'$

Qu⑤

(a) $= 1/\sqrt{3}$

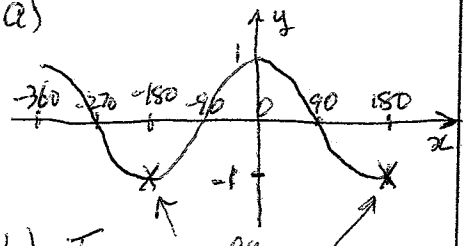
(b) $= -\sin 60 = -\sqrt{3}/2$

(c) $= \cos 225° = -\cos 45°$

$= -1/\sqrt{2}$

Qu⑥

(a)



(b) Two solns

Qu⑦

(a) $\frac{11\pi}{6}$ (b) $123°11'$

Qu⑧

(a) $x = 70°32'$ or $289°28'$

(b) $x = \pi - 1.1903 = 1.951$ rads

or $x = 2\pi - 1.1903 = 5.093$ rads

Qu⑨

(a) $l_{AB} = 7.2$ cm

(b) ADB $= 2\pi - 7.2 = 30.5$ cm

(c) AP ≈ 15.43 cm

(d) Area$_1 \approx 46.3\ cm^2$

(e) Area$_2 \approx 21.6\ cm^2$

(f) Area $\approx 24.7\ cm^2$

Qu⑩

(a) QB $= 10$

(b) BD $= 17$

(c) DQ $= \sqrt{261}$

(d) $\tan\theta = 6/15$

$\theta = 21°48'$

(e) Cosine Rule :–

$\angle QDB = 35°01'$