Grade 10 Trig Worksheet MEMO

Question 1

Determine x in each of the following:

a)

$$\sin 53^0 = \frac{x}{6,7}$$

$$x = 6,7 \sin 53^0$$

$$x = 5,35$$

b)

$$\cos x = \frac{9}{15}$$

$$x = 53,13°$$

*Shift, Cos, $(\frac{9}{15})$

Question 2

a) $11^2 + 8^2 = r^2 \quad (Pythag)$

$r^2 = 185$

$\therefore r = \sqrt{185}$

b) $\sin\theta = \frac{11}{\sqrt{185}}$

c) $\tan\theta = \frac{11}{8}$

d) $\sin^2\theta + \cos^2\theta = (\frac{11}{\sqrt{185}})^2 + (\frac{8}{\sqrt{185}})^2$

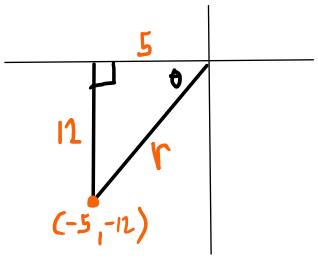
$= \frac{121}{185} + \frac{64}{185}$

$= \frac{185}{185}$

$= 1$

Question 3

If $5\tan\theta = 12$ en $\sin\theta < 0$, determine with the aid of a diagram:



$r^2 = 12^2 + 5^2$ (pythag)

$r^2 = 144 + 25$

$\sqrt{r^2} = \sqrt{169}$

$\therefore r = 13$

$\tan\theta = \frac{12}{5}$ Isolate the trig ratio

a) $13\left(\frac{-12}{13}\right) - \frac{1}{5}\left(\frac{-5}{13}\right)$

$= -12 + \frac{1}{13}$

$= -11\frac{12}{13}$

b) $\left(\frac{-12}{13}\right)^2 + \left(\frac{-5}{13}\right)^2$

$= \frac{144}{169} + \frac{25}{169}$

$= \frac{169}{169}$

$= 1$

Question 4

*Use special triangles

$2\left(\frac{1}{2}\right) + 3\left(\frac{1}{1}\right) - (-1) - \left(1 \div \frac{1}{2}\right)$

$= 1 + 3 + 1 - 2$

$= 3$

Question 5

a) $\theta = 44,2^\circ$

b) $\theta = -30^\circ \quad (\text{or} \quad \theta = 210^\circ)$

c) $2\theta = 75,96^\circ..$

$\therefore \theta = 38^\circ$

d) $2\tan\theta = -1,973$

$\tan\theta = -0,989$

$\therefore \theta = -44,7^\circ \quad (\text{or} \quad \theta = 315,3^\circ)$

e) $2\theta - 10^\circ = 60^\circ$

$2\theta = 70^\circ$

$\therefore \theta = 35^\circ$

Question 6

Δ ABC:

$\tan 27^\circ = \frac{9}{AC}$

$AC.\tan 27^\circ = 9$

$\therefore AC = \frac{9}{\tan 27^\circ}$

$\therefore AC = 17,7\text{ mm}$

Δ ACD

$\hat{A}_2 = 90 - 27^\circ = 63^\circ$

$\cos 63^\circ = \frac{17,7}{AD}$

$AD.\cos 63^\circ = 17,7$

$\therefore AD = \frac{17,7}{\cos 63^\circ}$

$\therefore AD = 39\text{ mm}$

Δ ADE

$\tan 25^\circ = \frac{DE}{39}$

$\therefore DE = 39.\tan 25^\circ$

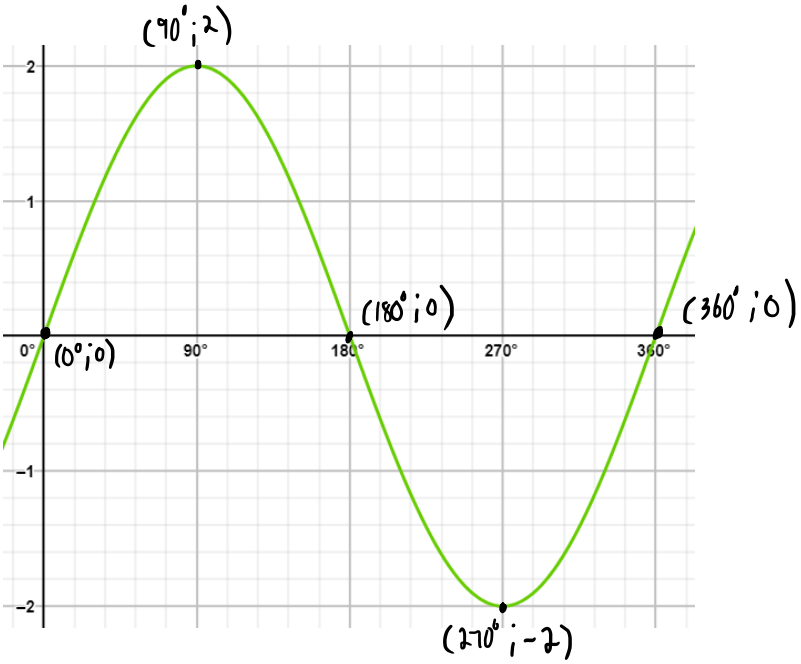
$\therefore DE = 18,2\text{mm}$

Question 7

a) $y = -\sin x$

b) $y = 2\tan x$

Question 8



a) Use your graph to answer the following:

i) For which values of x is $f(x) > 0$?

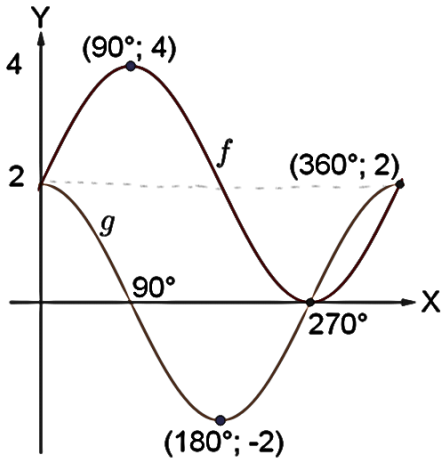
$x \in (0°; 180°)$ or $0° < x < 180°$

ii) What is the amplitude of this graph, $y = 2\sin x$?

Amplitude → 2

Question 9

The graph of $f(x) = asinx + q$ and $g(x) = bcosx + p$ in the interval $[0°; 360°]$ is shown below:



a) Determine the values of a, b, q and p.

$a = 2$ $\quad b = 2$

$q = 2$ $\quad p = 0$

To find the a value: $\frac{4 - 0}{2} = 2$

Since the graphs didn't move up or down.

b) Determine the coordinates where $f(x) = g(x)$ by reading the value from the graph.

$(0°; 2)$ $\quad (270°; 0)$ $\quad (360°; 2)$

*Look where the graphs cut. There they are equal to each other.

c) What is the amplitude of $f(x)$?

Amplitude → 2.