PRELIM REVIEW: PAPER 2 07 OCTOBER 2013

Lesson Description

In this lesson, we:

- Work through questions from the Sept 2013 Prelims Paper 2.

Questions

Question 1

(Adapted from GDE, Sept 2013, Paper 2, Question 9.1)

Given: sin2x = $\frac{\sqrt{15}}{8}$ and x ∈ [45°;90°].

With the use of a sketch, determine the value of cos x. (5)

Question 2

(Adapted from GDE, Sept 2013, Paper 2, Question 9.2)

a.) Simplify as far as possible: $\frac{sin(180°+x).2\cos(x-180°)}{tanx}$ (5)

b.) If cos26° = d, prove that:

$\frac{cos52°.cos64°}{cos206°.tan154°} + \sin(-26°)(sin386°) = 3d^2 - 2$ (9)

Question 3

(Adapted from GDE, Sept 2013, Paper 2, Question 9.3)

a.) Prove the identity: $\frac{sin2A}{1+\cos 2A} = \tan A$ (3)

b.) Hence or otherwise, show that tan 15° = $\frac{1}{2+\sqrt{3}}$ (4)

Question 4

(Adapted from GDE, Sept 2013, Paper 2, Question 9.4)

Determine the general solution of

Cos15°sinx + sin15°cosx = 0.5 (5)

Question 5

(Adapted from GDE, Sept 2013, Paper 2, Question 8.1 – 8.5)

a.) Use a system of axes to sketch the following graphs:

f(x) = sin 2x and g(x) = cos (x + 60°) if -180° ≤ x ≤ 180°
Clearly indicate all turning points as well as intercepts with the axes. (6)

b.) Write down the period of g. (1)

c.) Solve for x if sin2x –cos(-x – 60°) = 0 for -180° ≤ x ≤ 180°

Show all working. (7)

d.) **Using the graph** determine the value(s) of x for which

g(x) > f(x) for -180° ≤ x ≤ 90° (2)

e.) g undergoes the transformation to h(x) = cos(2x + 40°).

Describe the transformation that took place. (2)

Question 6

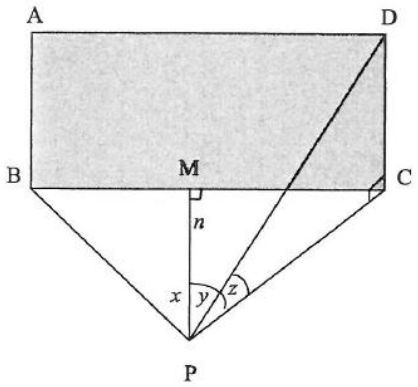
(Adapted from GDE, Sept 2013, Paper 2, Question 10)

P is on the same horizontal plane as the vertices B and C of a vertical, rectangular chalkboard ABCD.

The perpendicular distance PM from P to BC is n metres, $B\hat{P}M = x°$, $C\hat{P}M = y°$ and the angle of elevation $D\hat{P}C = z°$.

a.) Show that BC can expressed as:
BC = n(tanx + tany)
(5)

b.) Hence, prove that the area of ABCD = $\frac{n^2 tanz(tanx+tany)}{cosy}$ (7)



Learn Xtra Exam Revision Marathon 2013 competition
GOING THE DISTANCE together...
LearnXtra proudly Mindset
mindset
A3012
Prizes sponsored by:
SAMSUNG
Terms and Conditions on website