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Class 3C3 Date 23 Nov. 03 No. –

Maths D Holiday HW

Trigonometry 6.1 P1

6a. $AB^2 = 41^2 - 40^2$

$= 1681 - 1600$

$= 81$

$\therefore AB = 9$ cm (shown) #

b(i) $\tan \angle BCA = \frac{9}{40}$ #

(ii) $\sin \angle PBC = \frac{40}{41}$ #

(iii) $\cos \angle BCQ = -\frac{40}{41}$ #

7a. $\tan \angle CDB = \frac{12}{5}$ #

b. $\cos \angle CAB = \frac{16}{20} = \frac{4}{5}$

c. $\sin \angle ADB = \frac{12}{13}$ # ($\sin \angle ADB = \sin \angle CDB$)

8a. $\tan 40° = \frac{AB}{8}$

$0.839 = \frac{AB}{8}$

$\therefore AB = 8 \times 0.839$

$= 6.712$

$= 6.71$ cm (3sf) #

b. Area of triangle $BCD = \frac{1}{2} \times 10 \times 8 \times \sin 130°$

$= \frac{1}{2} \times 10 \times 8 \times \sin 50°$

$= \frac{1}{2} \times 10 \times 8 \times 0.766$

$= 30.64$

$= 30.6 \text{ cm}^2$ (3sf) #

9a. Using Pythagoras' theorem,

$12^2 + 16^2 = 400$

$= 20^2$

$\therefore \angle ANB$ is a right angle.

b(i) $\cos \angle ABN = \frac{16}{20}$

$= \frac{4}{5}$ #

b(ii) $\sin \angle ACB = \frac{12}{13}$ #

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10a. $x = 180° - 70° - 70°$

$= 40°$ #

b. $y = 180° - 110°$

$= 70°$ #

c. $z = 45° + 70°$

$= 115°$ #

11a. $\sin \angle BCX = \sin \angle BCA$

$= \frac{3}{4}$ #

b. BC : AC

1 : 2

AB : AC

3 : 4

BC : AC

2 : 4

AB = 12 cm

3 units = 12 cm

$\therefore$ BC = 2 units

$= (\frac{2}{3} \times 12)$ cm

= 8cm #

12a. Area of $\triangle ABC = \frac{1}{2} \times 5 \times 4 \times \sin 120°$

$= \frac{1}{2} \times 5 \times 4 \times 0.87$

$= 8.7 \text{ cm}^2$ #

b. $\angle CBD = 180° - 120°$

$= 60°$

$\cos 60° = -\cos 120°$

$= -(-0.5)$

$= 0.5$

$BD = \frac{4}{0.5}$

$= 8$ cm #

13a(i) $\angle ECD = 180° - (180° - 88°) - 31°$

$= 57°$ #

a(ii) $\angle EDC = 180° - 57° - (180° - 118°)$

$= 180° - 57° - 62°$

$= 61°$ #

b. DC, because it is subtended by the largest angle. #

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14a. $\cos C^\circ = \frac{5}{13}$

$DC = (26 \div 13) \times 5$

$= 2 \times 5$

$= 10\text{ cm}$

b. $\frac{\sin b^\circ}{26} = \frac{\sin a^\circ}{CB}$ #

$CB = \frac{26 \sin a^\circ}{\sin b^\circ}$

$= \left(\frac{26}{1} \times \frac{56}{65}\right) \div \frac{4}{5}$

$= \frac{26^2}{1} \times \frac{56}{65_{13}} \times \frac{5^1}{4_2}$

$= \frac{56}{2}$

$= 28\text{ cm}$ #

c. $\cos \angle ABX = -\cos b^\circ$

$= -\frac{3}{5}$ #

15a. $\tan x^\circ = \frac{CD}{6}$

$CD = 6 \times 0.75$

$= 4.5\text{ cm}$ #

b. $\cos \angle ABC = -\cos x^\circ$

$= -0.8$ #

c. $\sin \angle ABC = \sin x^\circ$

$= 0.6$

Area of triangle $ABC = \frac{1}{2} \times 10 \times 6 \times 0.6$

$= 18\text{ cm}^2$ #