BECA / Hutson / IB Math

Pretest

7 Oct 2019

Solutions

1. a) $2.094395...$
≈ 2.09

b) 0.8660254
≈ 0.866

2. a) $45{,}610 \approx 45{,}600$

b) 0.00190

3. $r = \frac{36}{2} = 18$

$V = \frac{4}{3}\pi (18)^3$
$= 24{,}429.024...$
$\approx 24{,}400 \ m^3$

4. $V = \frac{1}{3}\pi r^2 (24) = 220.5\pi$
$r^2 = 9.1875 \times 3$
$r = \cancel{3.0310881...}$ 5.25 cm
$\approx \cancel{3.03}$

5. a) 0.8

b) $\hat{A} = \sin^{-1} 0.8 = 53.1301...$
$\approx 53.1^\circ$

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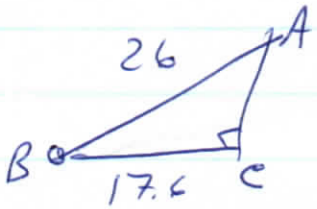
6. $\hat{B} = \cos^{-1}\left(\frac{17.6}{26}\right)$

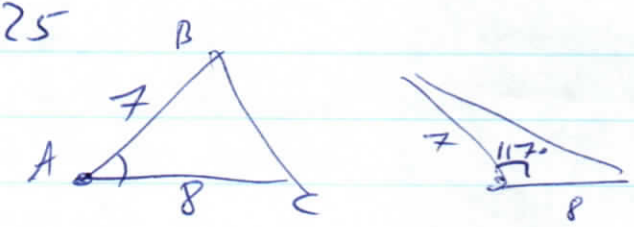
$= 47.39633...$
≈ 47.4



7. $c^2 = 2^2 + 4^2$
$c^2 = 20$
$c = \sqrt{20}$
$= 2\sqrt{5}$

8. a) $A = \frac{1}{2} \sin A (7)(8) = 25$

$\sin A = 0.89285...$
$A = 63.23449...$
$\approx 63.2°$
or $A = 180 - 63.23...$
$= 116.7655...$
$\approx 117°$



b) $BC^2 = 7^2 + 8^2 - 2(7)(8)\cos 117°$
$= 163.438...$
$BC = 12.78429...$
≈ 12.8

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9. a) $\frac{AC}{\sin 43} = \frac{11}{\sin 50}$

$AC = 11 \frac{\sin 43}{\sin 50}$

$= 9.793141...$

≈ 9.79

b) $m\angle C = 87°$

$A = \frac{1}{2}(11)(9.7931...)\sin 87°$

$= 53.7884...$

≈ 53.8

10. a) $BD^2 = 4.2^2 + 5.1^2 - 2(4.2)(5.1)\cos 78°$

$= 34.74306...$

$BD = 5.894324...$

≈ 5.89

b) $\cos B = \frac{8.3^2 - 8^2 - (5.8943...)^2}{-2(8)(5.8943...)}$

$= 0.316544...$

$\hat{ABD} = 71.54591...$

$\approx 71.5°$