Unit Test II

I

1. pentagon
2. hypotenuse
3. sector
4. prism
5. rhombus
6. chord
7. sphere
8. latitude

II $V = (10)(6)(4) = 240 \text{ in}^3$

III Area = area of two circles plus area of "unrolled" rectangle =

$2\pi r^2 + 2\pi rh \approx$

$2(3.14)(5^2) + 2(3.14)(5)(6) =$

$157 + 188.4 = 345.4 \text{ in}^2$

IV

1. $(2\sqrt{6})(5\sqrt{10}) = (2)(5)\sqrt{6}\sqrt{10} =$
$10\sqrt{60} = 10\sqrt{4}\sqrt{15} = 10(2)\sqrt{15} =$
$20\sqrt{15}$
2. $3\sqrt{7} - 2\sqrt{71} + 5\sqrt{3}$:
cannot be simplified
3. $3\sqrt{7} - 2\sqrt{7} + \frac{1}{2}\sqrt{7} - \frac{3}{2}\sqrt{7} =$
$3 - 2 + \frac{1}{2} - \frac{3}{2}\sqrt{7} = 1 + \frac{-2}{2}\sqrt{7} =$
$(1 + (-1))\sqrt{7} = (0)\sqrt{7} = 0$
4. $\frac{\sqrt{3}}{\sqrt{6}} = \frac{1}{\sqrt{2}} = \frac{1\sqrt{2}}{\sqrt{2}\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{4}} = \frac{\sqrt{2}}{2}$

V

1. $(N-2)180^\circ \Rightarrow$
$((6)-2)180^\circ = (4)180^\circ =$
720° total
$720^\circ \div 6 = 120^\circ$ per angle
2. 360°: The sum of the exterior angles of a regular polygon is always 360°.

VI

1. $A = \pi r^2 \approx \left(\frac{22}{7}\right)\left(\frac{7^{\cancel{2}}}{1}\right) =$
$\frac{154}{1} = 154 \text{ ft}^2$
2. $C = 2\pi r \approx \left(\frac{2}{1}\right)\left(\frac{22}{\cancel{7}}\right)\left(\frac{\cancel{7}}{1}\right) =$
$\frac{44}{1} = 44 \text{ ft}$

VII check with protractor

VIII area of 4 triangular faces:

$A = 4\left(\frac{1}{2}bh\right) =$

$(4)\left(\frac{1}{2}\right)(4)(5) = 40 \text{ in}^2$

area of base:

$A = (4)(4) = 16 \text{ in}^2$

total area $= 40 + 16 = 56 \text{ in}^2$

IX

1. The measure of an intercepted arc is the same as the measure of the central angle that intercepts it, so $m\angle AXC = 82^\circ$
2. The measure of an inscribed angle is half the measure of the arc it intercepts, so $m\angle ABC = 82^\circ \div 2 = 41^\circ$

X $\text{Leg}^2 + \text{Leg}^2 = \text{Hypotenuse}^2$ or $L^2 + L^2 = H^2$ or $A^2 + B^2 = C^2$

1. $L^2 + 6^2 = 10^2$
$L^2 + 36 = 100$
$L^2 = 64$
$L = 8$ ft

2. $L^2 + 2^2 = \left(\sqrt{13}\right)^2$

$L^2 + 4 = 13$

$L^2 = 9$

$L = 3$ units

3. $\left(2\sqrt{2}\right)^2 + \left(5\sqrt{2}\right)^2 = H^2$

$(2)(2)\sqrt{2}\sqrt{2} + (5)(5)\sqrt{2}\sqrt{2} = H^2$

$4\sqrt{4} + 5\sqrt{4} = H^2$

$4(2) + 25(2) = H^2$

$8 + 50 = H^2$

$58 = H^2$

$\sqrt{58}$ units $= H$

4. $\left(\frac{1}{\sqrt{2}}\right)^2 + \left(\frac{1}{\sqrt{3}}\right)^2 = H^2$

$\frac{(1)(1)}{\sqrt{2}\sqrt{2}} + \frac{(1)(1)}{\sqrt{3}\sqrt{3}} = H^2$

$\frac{1}{\sqrt{4}} + \frac{1}{\sqrt{9}} = H^2$

$\frac{1}{2} + \frac{1}{3} = H^2$

$\frac{3}{6} + \frac{2}{6} = H^2$

$\frac{5}{6} = H^2$

$\sqrt{\frac{5}{6}} = H$

$\frac{\sqrt{5}}{\sqrt{6}} = H$

$\frac{\sqrt{5}\sqrt{6}}{\sqrt{6}\sqrt{6}} = H$

$\frac{\sqrt{30}}{\sqrt{36}} = H$

$\frac{\sqrt{30}}{6}$ units $= H$

Test 20

1. B: hypotenuse

2. D: congruent

3. C: isosceles

4. E: Pythagorean theorem

5. B: $\sqrt{2}$

6. A: $25\sqrt{2}$

7. C: $3\sqrt{2}\sqrt{2} = 3\sqrt{4} = 3(2) = 6$

8. A: $\frac{9\sqrt{2}}{\sqrt{2}} = \frac{9}{1} = 9$

9. B: one leg $=$

$\frac{2}{\sqrt{2}} = \frac{2\sqrt{2}}{\sqrt{2}\sqrt{2}} = \frac{2\sqrt{2}}{\sqrt{4}} = \frac{2\sqrt{2}}{2} =$

$\frac{\sqrt{2}}{1} = \sqrt{2}$

both legs $= \sqrt{2} + \sqrt{2} = 2\sqrt{2}$

10. E: A, B and C

11. A: 7 because it is a $45°-45°-90°$ triangle and the legs are congruent

12. C: $7\sqrt{2}$ by rule for $45°-45°-90°$ triangles

13. D: $m\angle\alpha = 180° - (90° + 45°) =$ $180° - 135° = 45°$

14. A: $2\sqrt{3}$ because the legs are congruent

15. E: $2\sqrt{3}\sqrt{2} = 2\sqrt{6}$ so none of the above

Test 21

1. D: $180° - (60° + 30°) =$ $180° - 90° = 90°$

2. A: scalene

3. D: 2 times as long

4. B: dividing by 2

5. C: $\sqrt{3}$ times as long