TEST 1

1. (4.1)
$m + 81 = 180$
$m = 99$
Since vertical angles are equal:
$n = 99$
$3p = 81$
$p = 27$

2. (4.1)
$3x + 120 = 180$
$3x = 60$
$x = 20$
Since vertical angles are equal:
$6y = 120$
$y = 20$
$4z = 60$
$z = 15$

3. (4.1)
$x + 37° = 90°$
$x = 53°$

4. (10.3)
$P = \frac{1}{2}(2)(\pi)(3) + \frac{1}{2}(2)(\pi)(4) + 48$
$= 3\pi + 4\pi + 48$
$= 7\pi + 48 \approx 69.98$ in.

5. (10.3)
$A = \frac{60}{360} \cdot \pi(8)^2$
$= \frac{60}{360} \cdot 64\pi \approx 33.49$ in.^{2}

6. (10.3)
$A_{Base} = \frac{1}{2}\pi(3)^2 + (18)(8)$
$= \frac{9}{2}\pi + 144 \approx 158.13$ m^2
$V = \frac{1}{3}A_{Base} \times H$
$\approx \frac{1}{3}(158.13)(4) \approx 210.84$ m^3

7. (10.3)
$A = \frac{1}{2}(12)(8) - \frac{1}{2}(5)(2) - \frac{1}{2}(10)(3) - (2)(3)$
$= 48 - 5 - 15 - 6 = 22$ ft^2

8. (10.3)
$A = 12(5) - \pi(2)^2 = 60 - 4\pi \approx 47.44$ m^2

9. (10.3)
$A_{Base} = \pi(5)^2 = 25\pi$ in.^{2}
$V = A_{Base} \times H$
$750\pi = (25\pi)H$
$H = 30$ in.

10. (4.1)
Since angles opposite equal sides are equal angles,
$a = 42$.
$b + 42 + 42 = 180$
$b = 96$

11. (4.3)
$4 \times \overline{SF} = 7$
$\overline{SF} = \frac{7}{4}$
$3 \times \overline{SF} = y$
$3\left(\frac{7}{4}\right) = y$
$y = \frac{21}{4}$

12. (10.3)
$V = \frac{2}{3}A_{Base} \times$ height
$= \frac{2}{3}[\pi(8)^2](16)$
$= \frac{2}{3}(1024\pi) \approx 2143.57$ cm^3
$S.A. = 4\pi r^2 = 4\pi(8)^2 \approx 803.84$ cm^2

13. (2.5)
$\frac{(xy^2)^0 x^2 y}{x(y^{-3})^3} = \frac{x^2 y}{xy^{-9}} = xy^{10}$

14. (2.5)
$\frac{(x^3y^{-1})^{-2}z^{-2}}{(y^3zy^{-2})^5} = \frac{x^{-6}y^2z^{-2}}{y^{15}z^5y^{-10}} = x^{-6}y^{-3}z^{-7}$

15. (2.5)
$\frac{x^3y^2z^{-2}}{(xw^0)^{-2}z^{-1}x^2w^3} = \frac{x^3y^2z^{-2}}{x^{-2}z^{-1}x^2w^3}$
$= x^3y^2z^{-1}w^{-3}$

16. (2.5)
$-3^{-5} = -\frac{1}{3^5} = -\frac{1}{243}$

17. (2.5)
$\frac{1}{-3^{-3}} = -3^3 = -27$

18. (1.4)
$-4^3 - [-5^0 - (3 - 5) - 4]$
$= -64 - [-1 + 2 - 4] = -64 - [-3] = -61$

19. (1.4)
$-|-3 - 5| - (-3)^2 - 3^2 = -|-8| - 9 - 9$
$= -8 - 9 - 9 = -26$

20. (1.4)
$-3[-6^0 - 2(6 - 8) - 2^3]$
$= -3[-1 - 2(-2) - 8]$
$= -3[-1 + 4 - 8] = -3[-5] = 15$