

TEST 1

$$1. \quad m + 81 = 180$$

$$m = 99$$

Since vertical angles are equal:

$$n = 99$$

$$3p = 81$$

$$p = 27$$

$$2. \quad 3x + 120 = 180$$

$$3x = 60$$

$$x = 20$$

Since vertical angles are equal:

$$6y = 120$$

$$y = 20$$

$$4z = 60$$

$$z = 15$$

$$3. \quad x + 37^\circ = 90^\circ$$

$$x = 53^\circ$$

$$4. \quad P = \frac{1}{2}(2)(\pi)(3) + \frac{1}{2}(2)(\pi)(4) + 48$$

$$= 3\pi + 4\pi + 48$$

$$= 7\pi + 48 \approx 69.98 \text{ in.}$$

$$5. \quad A = \frac{60}{360} \cdot \pi(8)^2$$

$$= \frac{60}{360} \cdot 64\pi \approx 33.49 \text{ in.}^2$$

$$6. \quad A_{\text{Base}} = \frac{1}{2}\pi(3)^2 + (18)(8)$$

$$= \frac{9}{2}\pi + 144 \approx 158.13 \text{ m}^2$$

$$V = \frac{1}{3}A_{\text{Base}} \times H$$

$$= \frac{1}{3}(158.13)(4) \approx 210.84 \text{ m}^3$$

$$7. \quad A = \frac{1}{2}(12)(8) - \frac{1}{2}(5)(2) - \frac{1}{2}(10)(3) - (2)(3)$$

$$= 48 - 5 - 15 - 6 = 22 \text{ ft}^2$$

$$8. \quad A = 12(5) - \pi(2)^2 = 60 - 4\pi \approx 47.44 \text{ m}^2$$

$$9. \quad A_{\text{Base}} = \pi(5)^2 = 25\pi \text{ in.}^2$$

$$V = A_{\text{Base}} \times H$$

$$750\pi = (25\pi)H$$

$$H = 30 \text{ in.}$$

10. Since angles opposite equal sides are equal angles,

$$a = 42.$$

$$b + 42 + 42 = 180$$

$$b = 96$$

$$11. \quad 4 \times \overline{SF} = 7$$

$$\overline{SF} = \frac{7}{4}$$

$$3 \times \overline{SF} = y$$

$$3\left(\frac{7}{4}\right) = y$$

$$y = \frac{21}{4}$$

$$12. \quad V = \frac{2}{3}A_{\text{Base}} \times \text{height}$$

$$= \frac{2}{3}[\pi(8)^2](16)$$

$$= \frac{2}{3}(1024\pi) \approx 2143.57 \text{ cm}^3$$

$$S.A. = 4\pi r^2 = 4\pi(8)^2 \approx 803.84 \text{ cm}^2$$

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

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

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

$$16. \quad -3^{-5} = -\frac{1}{3^5} = -\frac{1}{243}$$

$$17. \quad \frac{1}{-3^{-3}} = -3^3 = -27$$

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

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

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