1. $(10\ m^3\ h^{-1})(35\ ft^3\ m^{-3})\left(\frac{1\ h}{3600\ s}\right) = \boxed{0.098\ ft^3\ s^{-1}}$

2. $(2000\ mm\ yr^{-1})\left(\frac{1\ in}{25.4\ mm}\right) = \boxed{78.74\ in\ yr^{-1}}$

3. $V = [Pptn]A_s = [89.5\ cm]\left(\frac{1\ m}{100\ cm}\right)(1{,}250\ mi^2)(259\ ha\ mi^{-2})(10^4\ m^2\ ha^{-1})$

$= \boxed{2.9 \times 10^9\ m^3}$

4. a) $(1\ acre\text{-}ft)(43{,}560\ ft^2\ ac^{-1}) = \boxed{43{,}560\ ft^3}$

b) $(1\ acre\text{-}ft)(4047\ m^2\ ac^{-1})(0.305\ m\ ft^{-1}) = \boxed{1230\ m^3}$

c) Various ways to solve this:

MINE → $A = (500\ ha)(2.47\ ac\ ha^{-1}) = 1235\ acres$

$d = (3.0\ in)\left(\frac{1\ ft}{12\ in}\right) = 0.25\ ft$

$V = dA = (0.25\ ft)(1235\ acre) = \boxed{309\ acre\ ft}$

5. $(84\ gal\ d^{-1})(0.003785\ m^3\ gal^{-1})\left(\frac{1\ d}{86{,}400\ s}\right) = \boxed{3.7 \times 10^{-6}\ m^3\ s^{-1}}$

6. a) $(5280\ ft\ mi^{-1})^2\left(\frac{1\ acre}{43{,}560\ ft^2}\right) = \boxed{640\ acre\ mi^{-2}}$

b) $(640\ acre\ mi^{-2})\left(\frac{1\ ha}{2.47\ ac}\right)\left(\frac{1\ km^2}{100\ ha}\right) = \boxed{2.59\ km^2\ mi^{-2}}$

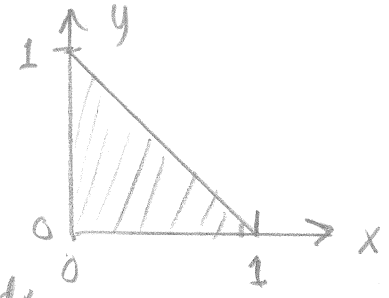
c) $(2.59\ km^2\ mi^{-2})(100\ ha\ km^{-2}) = \boxed{259\ ha\ mi^{-2}}$

7. a) 3
b) 3
c) 3
d) 2

8. a) 2
b) 3
c) 2
d) 3 (NOT 2; the 1.4 ADDED does not reduce sig. digits)

9. $pV = nRT \qquad R = \frac{pV}{nT} = \boxed{\frac{(atm)(L)}{(mol.)(K)}}$

10. $x + y = 1$



a) Rearrange $y = 1 - x$

$$A = \int_0^1 (1-x)\,dx = \int_0^1 dx - \int_0^1 x\,dx$$

$$= x\Big|_0^1 - \frac{1}{2}x^2\Big|_0^1$$

$$A = [1-0] - \tfrac{1}{2}[1-0] = \boxed{\tfrac{1}{2} = 0.5}$$

b). Geometry: Area of right Triangle $= \frac{1}{2}bh$ b = base, h = height

$$A = \tfrac{1}{2}(1)(1) = \boxed{\tfrac{1}{2} = 0.5}$$

11. $a_p = (31.7\ ft\ s^{-2})(0.305\ m\ ft^{-1}) = 9.67\ m\ s^{-2}$

$$\text{Weight}_{lb} = \frac{a_{planet}}{a_{earth}}(2.20\ lb\ kg^{-1})(12\ kg)$$

$$= \left(\frac{9.67\ m\ s^{-2}}{9.80\ m\ s^{-2}}\right)(2.20)(12) = \boxed{26\ lb}$$

12. $d = (18.\ mi\ h^{-1})(5280\ ft\ mi^{-1})(3\ s)\left(\frac{1\ hr}{3600\ s}\right) = \boxed{79\ ft}$

13. $\bar{v} = \frac{\text{Total Dist}}{\text{Total Time}} = \frac{90\ km}{\frac{50\ km}{30\ km\ h^{-1}} + \frac{40\ km}{60\ km\ h^{-1}}} = \frac{90}{1.67 + 0.67} = 38.5\ km/h$

$$= \boxed{39\ km/h}$$

14. $\rho_w = 1.00\ g\ km^{-3}$

$$m = \rho V = (1.00\ g\ cm^{-3})(10^{-3}\ kg\ g^{-1})(650\ mm^3)(10^{-3}\ cm^3\ mm^{-3})$$

$$= \boxed{6.50 \times 10^{-4}\ kg}$$

15. $$A = \frac{V}{d} = \frac{(300\ bbl)(31.5\ gal\ bbl^{-1})(0.00379\ m^3\ gal^{-1})}{(1.0 \times 10^2\ nm)(10^{-9}\ m\ nm^{-1})} \cdot \frac{1\ km^2}{10^6\ m^2}$$

$$\boxed{= 360\ km^2} \quad (!!)$$

16. $$\rho = \frac{m}{V} = \frac{25.624\ g}{(25\ cm^3)} = \boxed{1.0\ g\ cm^{-3}}$$

17. $$C = (8.4 \times 10^{-7}\ g \cdot L^{-1})\left(\frac{1\ mol}{28.0\ g}\right) = \boxed{3.0 \times 10^{-8}\ mol/L}$$

↑ 12+16 (C)(O)

18. $$(1.03 \times 10^4\ cal)(4.18\ J\ cal^{-1}) = \boxed{4.30 \times 10^4\ J}$$

19 a) $P = mv = kg \cdot m \cdot s^{-1}$

b) $p = F/A = N/m^2 = \frac{kg\ m\ s^{-2}}{m^2} = kg\ s^{-2}\ m^{-1}$ PASCAL

c) Power $= \frac{\text{Energy}}{\text{Time}} = \frac{J}{s} = \frac{kg\ m^2\ s^{-2}}{s} = kg\ m^2\ s^{-3}$ WATT

d) $v = L/T = m\ s^{-1}$

e) $\rho = kg\ m^{-3}$

f) $\mu = kg\ m^{-1}\ s^{-1}$ PASCAL·SEC

g) $\nu = \mu/\rho = m^2\ s^{-1}$

h) $\alpha = m^2\ s^{-1}$

i) $c_{p/v} = J\ K^{-1}\ g^{-1}$

j) $a = m \cdot s^{-2}$