|  |  |
| --- | --- |
|  | **Problem Set 1.2:** **Math Review: Formulas** |

1. Solve each formula for the variable indicated.

a) A = lw, “w”  b) A = 1/2 bh, “h” 

c) g = a + w, “a”  d) P = s – e, “s” 

e) v = u + at, “u”  f) W = R + Ht, “t”



1. Solve for the variable indicated.
2. a = v/t, solve for “v”
3. d = vt + ½at2 , solve for “a” 
4. , solve for “E”  
5.  solve for “n” 
6. The formula for the circumference of a circle is C = πd, where π = 3.14.
7. Solve the formula for d. 
8. Canada’s largest tree is a Douglas fir on Vancouver Island. Its circumference is 12.54 m. Use the formula for find the diameter of Canada’s largest tree. 

**6 cm**

1. Density can be calculated by the formula D = m/V, where D = density, m = mass and V = volume.

Find the mass of:

1. 55.2 cm3 of aluminum (dAl = 2.70 g/cm3)

b) 82.3 cm3 of mercury (dHg = 11.4 g/cm3). **Mass of aluminum = 149 g; mass of mercury is 938 g**

1. The temperature below the Earth’s surface, T, in degrees Celsius, is given by the formula: T=10d + 20, where d is the depth in kilometers.
2. The deepest hole in the Earth is a test-drilling hole in Russia. At the bottom of the hole the temperature is expected to reach 170’C. Estimate the depth of the drilling. **15 km**
3. Estimate the depth of a mine in which the temperature is 420˚C. **40. km**

|  |  |
| --- | --- |
|  | **Problem Set 1.3:** **Math Review -** **Trigonometry** |

*Draw Diagrams. Show work. Round off all answers to one decimal place.*

1. The angle of elevation of the summit from the bottom of the lift at Snow Bowl is 33˚. If a skier rides 1000 m on this lift to the summit, what is the vertical distance between the bottom of the lift and the summit? **545 m**
2. The angle of depression (below the horizontal) of an aircraft carrier from an approaching airplane is 52.2˚. If the plane is 700 m above level of the deck of the carrier, how far away is the plane from the carrier? **885.9 m**
3. The navigator on a bomber finds that the angle of depression of a target 4.00 km away is 11.4˚. At what altitude is the plane flying? **0.8 km**
4. Billy's kite has a string 40 m long and is flying 27 m above his eye level. Find the angle of elevation of the kite. **42.5˚**
5. At an airport, cars drive down a ramp 96 m long to reach the lower level baggage‑claim area 13 m below the main level. What angle does the ramp make with the ground at the lower level? **7.8˚**

. **1.5 km**

1. A pendulum 40 cm long is moved 30˚ from the vertical. How high is the lower end of the pendulum lifted? **5.4 cm**

**Bonus**: The angle of depression of the top of Billings Building from the roof of the Wolcott Building (in the same vertical plane) is 33.10˚, and from the 15th floor it is 21.50˚. If the distance between the roof and the 15th floor is 101 m, how far apart are the buildings? **391.5 m**