Worksheet basics solutions

**1.** Write the following numbers in scientific notation.

**(a)** 49,000 4.9x104

**(b)** 0.00007 7x10-5

**(c)** -3,112,221,005,107 -3.1x1012

**2.** Rewrite the following quantities in their base metric units in scientific notation.

**(a)** 2 kJ 2x103 J

**(b)** 0.7 nW 0.7x10-9 W = 7x10-10 W

**(c)** 4.2 Gm 4.2x109 m

**(d)** -2.2 cC -2.2x10-2 C

**(e)** 81.2 MV 81.2x106 V = 8.1x107 V

**3.** In all of the following scenarios, solve for B.

**(a)** **(b)**

**(c)** **(d)**

**(e)** **(f)**

**(g)**

**4.** Without using a calculator, give an approximation for the following trigonometric functions.

**(a)** cos(80o) 0.2

**(b)** cos(50o) 0.6

**(c)** sin(10o) 0.2

**5.** You have two vectors . Use these to help you solve the following:

**(a)**

**(b)**

**(c)**

**(d)**

**6.** Answer the following questions that refer to this function: .

**(a)** Take the derivative of this function where A,B,&C are considered to be constants.

**(b)** Integrate this function with respect to x where A,B,&C are considered to be constants.

**(c)** Integrate this function with respect to A where x,B&C are considered to be constants.

**(d)** Take the derivative again. This time A&B are considered to be constants, but C is not.

**7.**  **A** has units of meters (m), **B** has units of Joules squared per second (J2/s), and **C** has units of meters cubed times a second (m3s). In each situation, solve for the units of **Q** .

**(a)**

**(b)**

**(c)**

**(d)**