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)**