Year 11 Physics Assignment NAME_____

Exponential Notation and SI Prefixes

1. Values in Physics are often very small. The mass of a proton, for example, is 1.67×10^{-27} kg.
   Write this in normal notation and hence suggest why exponential notation is common in Physics.

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2. Explain which of the following is the best way to enter 9.11×10^{-31} into a calculator:

   (a) `9.11*10^-31` (b) `9.11E-31` (c) `9.11*10E-31`

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3. Expand the following using SI prefixes:

   a) 12 mm b) 52 kN c) 5 μs

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4. Write the following in scientific notation with correct significant figures:

   a) 0.0000031 b) 52231 c) 2010 (3 s.f.)

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5. Write the following in normal notation with correct significant figures:

   a) 1.0×10^{-2} b) 2×10^{2} c) 3.542×10^{5}

/6

6. Write the answer to these calculations, using correct s.f. and units.
   To avoid confusion, no SI prefixes are used below (so m is for metres, not milli)

   a) 72 N divided by 1.13×10^{-3} kg

   b) 5.22×10^{-7} m divided by 1.60×10^{-9} s

   c) 2×10^{12} N multiplied by 2.01 m

   d) 2.40×10^{2} m multiplied by 0.03 m

   e) 2.034×10^{3} m/s plus 1.15×10^{3} m/s

   f) 4.0462×10^{-27} kg minus 1.5158×10^{-30} kg

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