Power problem set

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Attempt the following problems. Make sure to lay out your work well and give units (where relevant).

1. A device requires 5 A at 230 V. Determine the apparent power.

2. A device consumes 720 W when connected to a 230 V supply. Determine the apparent power.

3. Two devices, A and B, operate on a 230 V supply. Device A consumes 650 W and has a power factor of 0.9. Device B consumes 450 W at an unknown power factor. Determine the apparent power.

4. An IT device has an apparent power requirement of 750 W. Its real power is 680 W. Determine:

   (a) Its power factor.

   (b) The reactive power component.

5. A SAN storage array consumes 1250W at 230V:

   (a) Find a suitable rackmount UPS from APC / Eaton for it.

   (b) Estimate runtime of your chosen UPS from specifications.

6. Write a script in PowerShell (or any other language) to do some / all of the following:

   (a) Work out the total apparent power for a number of devices.

   (b) Add in a catalogue of commonly used devices in your data centre.

   (c) Select a suitable UPS from a small catalogue (e.g. 3-5).

   Test your script using some of the problems above.