

**Exercise 1.72**

Give the derived SI units for each of the following quantities in base SI units:

(a) acceleration = distance/time<sup>2</sup>

(b) force = mass × acceleration

(c) work = force × distance

(d) pressure = force/area

(e) power = work/time

(f) velocity = distance/time

(g) energy = mass × (velocity)<sup>2</sup>

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**Solution**

(a) acceleration = distance/time<sup>2</sup> = m/s<sup>2</sup>

(b) force = mass × acceleration = kg × m/s<sup>2</sup> = N (newton)

(c) work = force × distance = N × m = J (joule)

(d) pressure = force/area = N/m<sup>2</sup> = Pa (pascal)

(e) power = work/time = J/s = W (watt)

(f) velocity = distance/time = m/s

(g) energy = mass × (velocity)<sup>2</sup> = kg × (m/s)<sup>2</sup> = N × m = J (joule)