Exercise 10H

1 c) $34.6 \times 10^{-2} = 3.46 \times 10^{-1}$

1 f) $2 \times 3 \times 10^{5} = 6 \times 10^{5}$

1 i) 23 million $= 23 \times 10^{6} = 2.3 \times 10^{7}$

1 l) $16 \times 10^{2} \times 3 \times 10^{-1}$

$48 \times 10^{1} = 4.8 \times 10^{2}$

1 o) $\frac{56 \times 10^{3}}{2} \times 10^{-2} = 28 \times 10^{1} = 2.8 \times 10^{2}$

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2 c) $2 \times 10^{4} \times 6 \times 10^{4} = 12 \times 10^{8} = 1.2 \times 10^{9}$

2 f) $2 \times 10^{4} \times 6 \times 10^{-4} = 12 = 1.2 \times 10^{1}$

2 i) $(2 \times 10^{-2})^{3} = 8 \times 10^{-6}$

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3 c) $2.4 \times 10^{4} \times 6.6 \times 10^{4}$

$= 1{,}584{,}000{,}000 = 1.584 \times 10^{9}$

3 f) $(6.8 \times 10^{-4})^{2} = 0.000000462$

$= 4.62 \times 10^{-7}$

3 i) $5.9 \times 10^{3} \times 2.5 \times 10^{-2} = 147.5$

1.475×10^{2}

3k) $1.8 \times 10^{2} \times 3.6 \times 10^{3} \times 2.4 \times 10^{-2}$

$= 8640 = 8.64 \times 10^{3}$

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6) $20{,}000{,}000{,}000{,}000 = 2 \times 10^{13}$

$0.000{,}000{,}000{,}1 = 1 \times 10^{-10}$

Mass $= 2 \times 10^{13} \times 1 \times 10^{-10}$

$= 2 \times 10^{3}$

$= 2000\,g$

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14) Saturn / Earth $\dfrac{5.686 \times 10^{26}}{6.04 \times 10^{21}}$

$= 94{,}139$

$= 94{,}100$ to 3 s.f.

Exercise

1) $4.6 \times 10^{23} \times 2.5 \times 10^{18} = 1.15 \times 10^{42} = 1.2 \times 10^{42}$

2) $9.3 \times 10^{33} \div 4.8 \times 10^{7} = 1.9375 \times 10^{26}$

$= 1.9 \times 10^{26}$

3) $5.2 \times 10^{19} + 3.6 \times 10^{18} = 5.56 \times 10^{19}$