

## Worksheet 1.3 – Significant Figures

1) Counting sig figs: write down the number of sig figs each piece of data has:

- |                                    |                                    |
|------------------------------------|------------------------------------|
| a) 0.0021 m <b>2</b>               | d) 410 kg <b>2</b>                 |
| b) 200,000 m <sup>3</sup> <b>1</b> | e) 0.0002 s <b>1</b>               |
| c) 21.200 s <b>5</b>               | f) 91.0001 m <sup>2</sup> <b>6</b> |

2) Multiplication with sig figs:

- |   |  |
|---|--|
| a) 92.45 m · 1.01 m = <b>93.4 m<sup>2</sup></b> | e) 0.00698 m <sup>2</sup> · 100 <u>cm</u> = <b>0.007 m<sup>3</sup></b> |
| b) 0.0024 N · 4.24 s = <b>0.10 N·s</b>          | f) 2001 kg · 12.6 m/s = <b>25200 kg·m/s</b>                            |
| c) 4000 kg · 2.001 m/s = <b>8000 kg·m/s</b>     | g) 610 N · 4002 s = <b>2400 000 N·s</b>                                |

3) Division with sig figs:

- |  |   |
|--|---|
| a) 12 m ÷ 31.2 s = <b>0.38 m/s</b>                             | d) 1800 kg ÷ 410 s = <b>4.4 kg/s</b>                                |
| b) 69.4 kg ÷ 38.888 s = <b>1.78 kg/s</b>                       | e) 0.102 m ÷ 100 <u>ms</u> = <b>1 m/s</b>                           |
| c) 0.012 m <sup>2</sup> ÷ 0.0002 s = <b>60 m<sup>2</sup>/s</b> | f) 1001 m <sup>3</sup> ÷ 40 <u>ks</u> = <b>0.03 m<sup>3</sup>/s</b> |

4) Addition and subtraction with sig figs:

- |   |                                       |
|---|---------------------------------------|
| a) 14 m + 12.2 m = <b>26 m</b>                        | d) 69.45 s + 19.3 s = <b>88.8 s</b>   |
| b) 0.012 kg + 1.0046 kg – 0.0064 kg = <b>1.010 kg</b> | e) 200.1 m – 128.28 m = <b>71.8 m</b> |
| c) 12.46 kg + 9.82 kg – 6.666 kg = <b>15.61 kg</b>    |                                       |

5) Chain calcs with sig figs: round off to the appropriate number of sig figs **at the end!**

- a) (0.045 m · 9.92 kg) ÷ 16.86 s = **0.026 kg·m/s**
- b) (9000 m · 4.01 m) · 1.002 m = **40 000 m<sup>3</sup>**
- c) (0.21 m · 6.23 s) · 1.002 m = **1.3 m<sup>2</sup>·s**
- d) (18.01 m · 0.41 m) ÷ (14.62 kg · 12 s) = **0.042  $\frac{m^2}{kg·s}$**