

# Standard Form

# Mark Scheme

1. (a)  $4.8 \times 10^7$  3  
 $6 \times 10^2 \times 8 \times 10^4$   
 $48 \times 10^6 = 4.8 \times 10^7$   
*M1 for  $6 \times 10^a \times 8 \times 10^b$  oe, a and b integers including 0*  
*A1 for  $48 \times 10^6$  oe*  
*A1 cao*
- (b) 230000 2  
 $200\ 000 + 30\ 000 = 230\ 000$   
*B2 cao*  
*(B1 for sight of 200 000 or 30 000 or  $2.3 \times 10^5$  or  $23 \times 10^4$ )*
- [5]
2. (a)  $4 \times 10^7$  2  
0.000 03  
*B1 cao*  
*B1 cao*
- (b)  $1.2 \times 10^3$  2  
 $12 \times 10^2$   
 $1.2 \times 10^3$   
*M1 for  $12 \times 10^2$  or 1200 ft from "(a)"*  
*A1 for  $1.2 \times 10^3$  ft*
- [4]
3. (a)  $4.0 \times 10^7$  1  
*B1 cao*
- (b) 0.000014 1  
*B1 cao*
- (c)  $3.0 \times 10^{14}$  2  
*B2 cao accept  $3 \times 10^{14}$*   
*(B1 for  $30 \times 10^{13}$  or  $5 \times 6 \times 10^{4+9}$ )*  
*SC: B1 for correct answer as an ordinary number*
- [4]

4.	(a) $4.56 \times 10^5$ <i>B1 cao</i>	1	
	(b) $3.4 \times 10^{-4}$ <i>B1 cao</i>	1	
	(c) $1.6 \times 10^8$ <i>B1 cao</i>	1	<b>[3]</b>
5.	$7.75 \times 10^{-5}$ <i>B2 for <math>7.75 \times 10^{-5}</math> (B1 for either <math>7.75</math> or <math>3.875 \times 10^5</math> or <math>5 \times 10^9</math>)</i>	2	<b>[2]</b>
6.	(a) $1.44 \times 10^6$ <i>B1 cao</i>	1	
	(b) 1667 $(2.4 \times 10^9) \div (1.44 \times 10^6)$ <i>M1 for <math>2.4 \times 10^9 \div "1.44 \times 10^6"</math> oe A1 for 1666 or 1666.6... or 1666.7 A1 (dep) for 1667 cao</i>	3	<b>[4]</b>
7.	$4.3 \times 10^3$ $\frac{6 \times 10^{15}}{3.2 \times 10^8}$  $1.875 \times 10^7$  <i>B3 for <math>4.3 \times 10^3</math> to <math>4.34 \times 10^3</math> (B2 for <math>1.875 \times 10^7</math> oe or 4300 to 4340 or final answer of <math>1.9 \times 10^7</math>) (B1 for sight of <math>6 \times 10^{15}</math> oe or <math>3.2 \times 10^8</math> oe)</i>	3	<b>[3]</b>