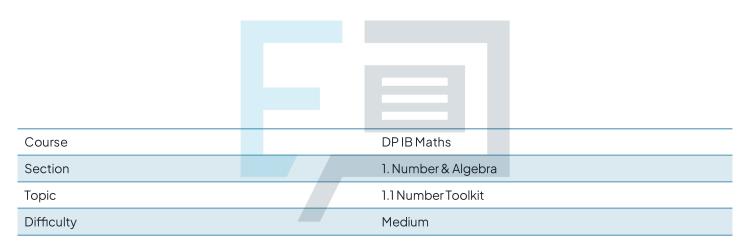


## 1.1 Number Toolkit

## **Mark Schemes**



## **Exam Papers Practice**

To be used by all students preparing for DP IB Maths AI SL Students of other boards may also find this useful



Question 1

ion 1  
a) Sub a and b into Q.  
Q = 
$$\frac{50 \sin 2(45^{\circ})}{8(2)}$$
  
Q = 1.875  
b) i) Q = 1.88 (2dp)  
ii) Q = 1.9 (2sf)  
c) Percentage error tormula  
 $e = \frac{V_{A} - V_{E}}{V_{E}} \times 100 \times$  (in formula booklet)  
where VA is the approximated value  
and Ve is the exact value actice  
VA = 2 Ve = 1.875  
Sub VA and Ve into tormula.  
 $e = \frac{1 - 1.875}{1.875} \times 100 \times$   
 $e = 6.666... \times$ 



**Question** 2

a) Sub x and y into R.  

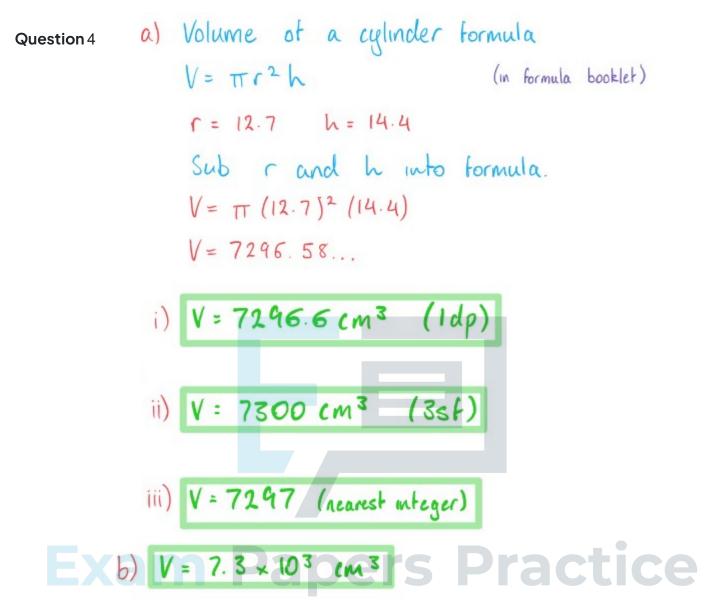
$$R = \frac{4(1.25)}{6\cos 5(56^{\circ})}$$

$$R = -\frac{5}{6} (fraction)$$
b) R = -0.83333...  
i) R = -0.8 (Idp)  
ii) R = -0.8 (Idp)  
iii) R = -0.8 (Idp)  
i



a) Sub a and b into C. **Question** 3  $(= 10 \sqrt{\frac{4.14 \times 10^6}{2.510 \times 10^7}})^3$ (=9197.0804)C = 9197 (nearest integer) b)  $(= 9.197 \times 10^3)$ c) Percentage error formula.  $E = \frac{V_{M} - V_{E}}{V_{C}} \times 100\%$  (in formula booklet) where VE is the exact value and VA is the approximated value. EXA VA : 9000 DE = 10 74.14 × 10 5 13 (exact answer) Sub VA and VE into formula.  $\mathcal{E} = \left| 4000 - 10 \left( \frac{4.14 \times 10^6}{2.54 \times 10^{-7}} \right)^3 \right|$  $10\left(\frac{4.14 \times 10^{6}}{2.14 \times 10^{6}}\right)^{3}$ E = 2.1428 ... 1. E = 2.14 %





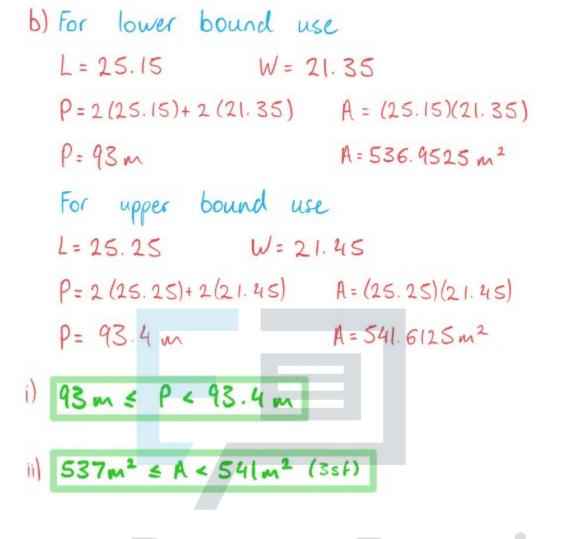


Question 5

a) For L

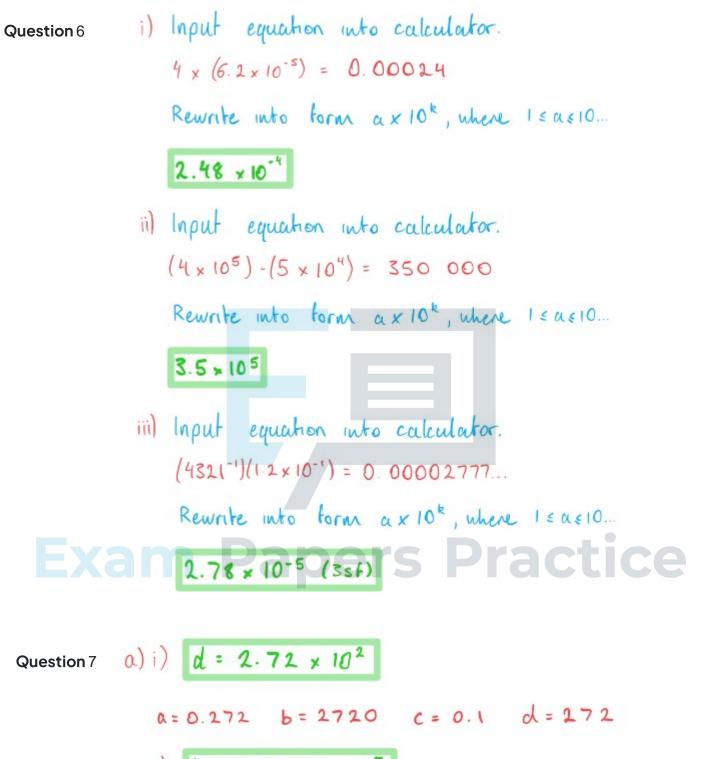
Any value equal to or more than 25.15cm will be rounded up to 25.2 cm (Idp). Any value less than 25.25cm will be rounded down to 25.2 cm (Idp). For W Any value equal to or more than 21.35cm will be rounded up to 21.4 cm (Idp). Any value less than 21.45cm will be rounded down to 21.4 cm (Idp). Write bounds as an inequality. i) 25.15m ≤ L < 25.25m Exa 121.35 marzaras Practice





## **Exam Papers Practice**





ii) 
$$b = 0.0272 \times 10^5$$



b) Sub a, b, c and d into equation.  

$$0.272 + 0.0272 \times 10^{5} - e(10e)^{-1} + 2.72 \times 10^{2}$$
  
 $0.272 + 2720 + 0.1 + 2.72$   
 $= 2992.172$   
i) 2990 (ssf)  
(ii) 2.99 (ssf)  
Question 8 a) i) Mean,  $\bar{x}$ , of a set of data  
 $\bar{x} = \frac{5}{2}.1 \times 10^{3}$   
Question 8 a) i) Mean,  $\bar{x}$ , of a set of data  
 $\bar{x} = \frac{5}{2}.1 \times 10^{3}$   
 $\bar{x} = 2.18 + 2.21 + 2.23 + 2.19 + 2.24$   
 $\bar{x} = 2.21 \text{ m}$   
Alternatively you could input the values into your EQC.  
 $E = \frac{VA - Ve}{Ve} \times 100 \times$  (in formula booklet)  
 $V_{A} = 2.21$   $Ve = 2.2$   
Sub  $V_{A}$  and  $Ve$  into formula.  
 $e = \frac{2.21 - 2.2}{2.2} \times 100 \text{ formula}$ .  
 $e = 0.45454...$ 

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(1)) Mean, 
$$\bar{x}$$
, of a set of data  
 $\bar{x} = \frac{\bar{y}_{i}h_{x_{i}}}{n}$  and  $n = \frac{x}{\bar{y}_{i}h}$  (n formula booklet)  
 $\bar{x} = \frac{20.3 + 19.4 + 20.3 + 20.4 + 20.1}{5}$   
 $\bar{z} = 20.2 \text{ kg}$   
Alternatively you could imput the values who your 6DC.  
(i) Percentage error formula.  
 $e = |V_{R} - V_{E}| \times 100 \times$  (in formula booklet)  
 $V_{A} = 20.2 \quad V_{E} = 20$   
Sub  $V_{A}$  ouch  $V_{E}$  into formula.  
 $e = |20.2 - 20|_{x \to 100 \times}$   
Question 9  
A) Volume of a cuboict formula.  
 $V = Lwh$  (in formula booklet)  
where  $L$  is the length, w is the width  
and h is the height.  
 $l = 80 \quad w = 60 \quad h = 20$   
Sub  $l, w$  and h into formula.  
 $V = 20 \times 60 \times 20$   
 $V = 96 000 \text{ cm}^{3}$ 

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b) 
$$N = \frac{box}{cube} \frac{volume}{cube}$$
  
 $N = \frac{96000}{300}$   
 $N = 320 \text{ cubes}$   
c) Percentage error formula.  
 $\varepsilon = \frac{V_{R} - V_{E}}{V_{E}} \times 100 \times$  (in formula booklet)  
where  $V_{E}$  is the exact value and  $V_{H}$  is  
the approximated value.  
 $V_{R} = 320$   $V_{E} = 280$   
Sub  $V_{R}$  and  $V_{E}$  into formula.  
 $\varepsilon = \frac{320 - 280}{280} \times 100$  Practice  
 $\varepsilon = 14.2 \times 57 t$ .  
 $\varepsilon = 14.5 \times 100$ 



