Exam Papers Practice

1.1 Number Toolkit

Question Paper

Course	DP IB Maths
Section	1. Number & Algebra
Topic	1.1 Number Toolkit
Difficulty	Medium

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

Question 1a

Let $Q = \frac{30 \sin 2a}{8b}$, where $a = 45°$ and $b = 2.$

Calculate the exact value of Q.

[1 mark]

Question 1b

Give your answer from part (a) correct to

(i)
two decimal places

(ii)
two significant figures.

[2 marks]

Question 2a

Let $R = \frac{4x}{6\cos 5y}$, where $x = 1.25$ and $y = 36°$.

Write the angle of y in radians.

[1 mark]

Question 2b

Find the value of R. Give your answer as a fraction.

[2 marks]

Question 2c

Give your answer from part (b) to

(i)
one decimal place

(ii)
three significant figures.

[2 marks]

Question 3a

Consider the numbers $a = 4.14 \times 10^6$ and $b = 2.54 \times 10^{-7}$.

Calculate $C = \sqrt[10]{\left(\frac{a}{b}\right)^3}$. Give your answer correct to the

(i)
nearest integer

(ii)
three significant figures.

[3 marks]

Question 3b

Give your answer to part (a) (i) in the form $a \times 10^k$, where $1 \leq a \leq 10$ and $k \in \mathbb{Z}$.

[2 marks]

Question 4a

A cylinder has radius of 12.7 cm and height of 14.4 cm.

Calculate the volume of the cylinder correct to

(i)
one decimal place

(ii)
three significant figures

(iii)

the nearest integer.

[3 marks]

Question 4b

Write your answer to part (a) (ii) in the form $a \times 10^k$, where $1 \leq a \leq 10$ and $k \in \mathbb{Z}$.

[2 marks]

Question 5a

A rectangular field has length, L, of 25.2 m and width, W, of 21.4 m, each correct to 1 decimal place.

Calculate the lower and upper bound for

(i)
L

(ii)

W

[2 marks]

Question 5b

Calculate the lower and upper bound for the

(i)
perimeter, P
(ii)
area, A, of the field.

[4 marks]

Question 6

Calculate the following, giving your answer in the form $a \times 10^k$, where $1 \leq a \leq 10$ and $k \in \mathbb{Z}$

(i)

$4 \times (6.2 \times 10^{-5})$

(ii)

$(4 \times 10^5) - (5 \times 10^4)$

(iii)

$(4321^{-1})(1.2 \times 10^{-1})$

[6 marks]

Question 7a

Consider the following four numbers.

$a = 0.272$ $b = 0.0272 \times 10^5$ $c = e(10e)^{-1}$ $d = 2.72 \times 10^2$

Write down

(i)
the number that is in the form $a \times 10^k$, where $1 \leq a \leq 10$ and $k \in \mathbb{Z}$

(ii)

the largest of these numbers.

[2 marks]

Question 7b

(i)
Find the value of $a + b - c + d$.

(ii)
Give your answer to part (b)(i) in the form $a \times 10^k$, where $1 \leq a \leq 10$ and $k \in \mathbb{Z}$

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[4 marks]