

Measures - Dimensional Analysis

Q1

The table shows some expressions.

a , b , c and d represent lengths.

π and 2 are numbers that have no dimensions.

| | | | | | | |
|--------------|---------------|---------------------|-------------|--------------------|-------|------------|
| $c^2(b + d)$ | $\pi a^2 c^2$ | $\frac{a^3 b}{c^3}$ | $\pi a^2 b$ | $\frac{2a^3 d}{c}$ | d^2 | $2a + b^2$ |
| | | | | | | |

Tick (✓) the boxes underneath the **three** expressions which could represent volumes.

(Total 3 marks)

Q2

In this question the letters f , g , and h represent lengths.

(a) Here are some expressions.

f^2gh

$f^2(g + h)$

$2(f + g)$

$2h(f - g)$

Write down the expression that represents

(i) a length,

.....

(a)(i) _____ [1]

(ii) a volume.

.....

(ii) _____ [1]

(b) Explain why $f + g^2$ cannot represent a length, an area or a volume.

_____ [1]

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Q1

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 π and 2 are numbers that have no dimensions.

| | | | | | | |
|------------|---------------|---------------------|-------------|--------------------|-------|------------|
| $c^2(b+d)$ | $\pi a^2 c^2$ | $\frac{a^3 b}{c^3}$ | $\pi a^2 b$ | $\frac{2a^3 d}{c}$ | d^2 | $2a + b^2$ |
| ✓ | | | ✓ | ✓ | | |

Tick (✓) the boxes underneath the **three** expressions which could represent volumes.

(Total 3 marks)

Q2

In this question the letters f , g , and h represent lengths.

(a) Here are some expressions.

$f^2 gh$

$f^2(g+h)$

$2(f+g)$

$2h(f-g)$

Write down the expression that represents

(i) a length,

.....
 (a)(i) $2(f+g)$ [1]

(ii) a volume.

.....
 (ii) $f^2(g+h)$ [1]

(b) Explain why $f+g^2$ cannot represent a length, an area or a volume.

 Cannot add units of different dimensions
 $f+g^2$ is a length plus an area [1]