

ACTION

Revision Material



[http://corbettmaths.com/contents/Video 20](http://corbettmaths.com/contents/Video%20)

RESPONSE

Calculate the value of each expression

$a = 3, b = -2, c = -7, \text{ and } d = 8$

$n = -12, p = -9, \text{ and } q = -4$

Fluency



1) $5b$

5) $\frac{d}{b} - c$

1) n^2

5) $\frac{p^2}{q}$

2) $20 - c$

2) $2p^2$

3) $5d + 2c$

6) $\frac{bc}{2} + d$

3) \sqrt{pq}

6) $\frac{\sqrt{4q^2}}{n}$

4) $-ac + 21$

7) $\frac{3cd}{ab}$

4) $(2q)^3$

7) $\sqrt[3]{-5n-q}$

Reasoning



Using the equations of motion, you can calculate the motion of an object. Choose an appropriate equation to find the required variable.

- 1) $u = -5, v = 15$ and $t = 4$, find s .
- 2) $u = 10, a = 2$ and $s = 11$, find v .
- 3) $v = -80, u = -12$ and $t = 4$, find a .
- 4) $u = -4, t = 5$ and $s = 17.5\text{m}$, find a .

s -displacement (m)
 u -initial velocity (ms^{-1})
 v -final velocity (ms^{-1})
 a -acceleration (ms^{-2})
 t -time of motion (s)

$$v = u + at$$

$$s = ut + \frac{1}{2}at^2$$

$$v^2 = u^2 + 2as$$

$$s = \left(\frac{u+v}{2}\right)t$$

Problem Solving



The force (measured in Newtons) between two bodies of masses m_1 and m_2 (in kg) with centres at a distance r (in m) can be calculated using Newton's Law of Universal Gravitation.

$$F = G \frac{m_1 m_2}{r^2}$$

Which is the strongest force, that between the Earth and the Moon or between the Earth and the Sun?

How many times stronger is it?

RAG

Earth mass 6.0×10^{24} kg
 Moon mass 7.3×10^{22} kg
 Sun mass 2.0×10^{30} kg
 Earth to Moon 3.8×10^8 m
 Earth to Sun 1.5×10^{11} m
 G is the gravitational constant
 $6.7 \times 10^{-11} \text{Nm}^2/\text{kg}^2$

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