**Answer:**

Ratio of potential energy,

Potential energy in the 1st case,

Ep = mgh

Ep = mg2h ………….if height is doubled ………. (1)

Potential energy in the 2nd case,

Ep = mgh

Ep = mg3h ………...if the height is tripled ……… (2)

From (1) and (2)

Ratio of their potential energy,

= mg2h / mg3h

= 2mgh / 3mgh

= 2/3

Therefore the ratio = 2 : 3

Now,

Ratio of work done,

Work done in the 1st case,

W = fs

W = f \* 2s ……..since the distance was doubled ……….. (1)

W = 2fs

Work done in the 2nd case,

W = fs

W = f \* 3s………..since the distance is tripled ………….. (2)

W = 3fs

From (1) and (2)

Ratio of their work done,

= 2fs / 3fs

= 2 / 3

Therefore, the ratio = 2 : 3

Thank You……..

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