

Joe balances a stationary coin on the tip of his finger 20 cm from the top of the table. How much work is Joe doing?



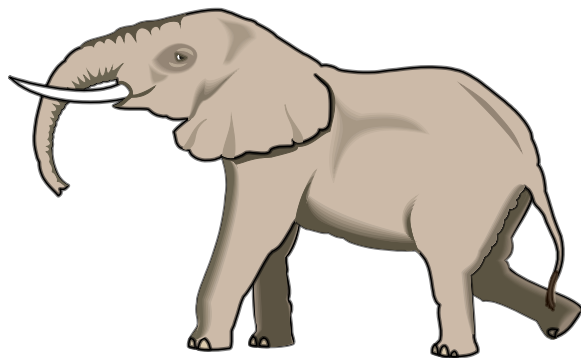
None,
because no
movement

Dec 12 - 3:41 PM

How much work does the elephant do while moving a circus wagon 20 meters with a pulling force of 200N?

$$200\text{N} \cdot 20\text{m}$$

$$4000\text{J}$$



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A 900N mountain climber scales a 110 m cliff.
how much work is done by the mountain climber.

$$900\text{N} \cdot 110\text{m}$$
$$99,000\text{J}$$

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What is energy?

nuclear
Kinetic
Potential
motion
heat
coffee
electricity
Solar
light
sugar
sound
candle

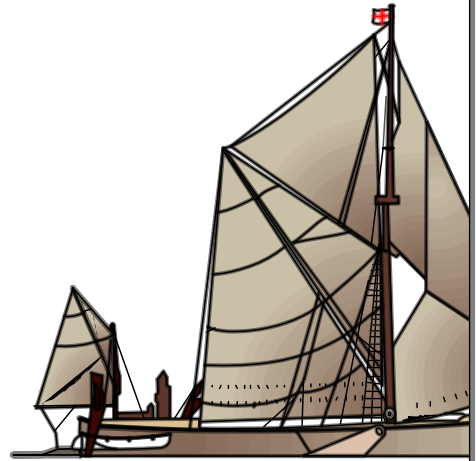
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Kinetic energy-the energy of motion for example, as a roller coaster car crashes downhill, its kinetic energy increases, the amount of kinetic energy possessed by an object is never greater than the amount of work done on that object

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Formula for kinetic energy (KE)

$$E_k = \frac{1}{2} m v^2$$

↑
mass
kg

velocity
(m/s)

What are their units?

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A 3 kg ball is rolling 2 m/s. How much kinetic energy does it have?

What is 3 kg?

- A. Mass
- B. Energy
- C. Distance
- D. Velocity
- E. Force
- F. Time

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A 3 kg ball is rolling 2 m/s. How much kinetic energy does it have?

$$m = 3 \text{ kg}$$

$$v = 2 \text{ m/s}$$

What is the equation for E_k ?

- A. $E_k = (1/2)mv^2$
- B. $E_k = mv^2$
- C. $E_k = mgh$
- D. $E_k = ma$

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A 3 kg ball is rolling 2 m/s. How much kinetic energy does it have?

$$m = 3 \text{ kg}$$

$$v = 2 \text{ m/s}$$

$$\text{Equation: } E_k = (1/2)mv^2$$

What does v^2 mean?

A. $v \times v$

B. $2 \times v$

C. $v \times 2$

D. $v + 2$

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A 3 kg ball is rolling 2 m/s. How much kinetic energy does it have?

$$m = 3 \text{ kg}$$

$$v = 2 \text{ m/s}$$

$$\text{Equation: } E_k = (1/2)mv^2$$

Which of the following is correct?

A. $E_k = (1/2) \times (3 \text{ kg}) \times (2 \text{ m/s})^2$

B. $E_k = (1/2) \times (2 \text{ m/s}) \times (3 \text{ kg})^2$

C. $E_k = (1/2) \times (3 \text{ kg}) \times (2 \text{ m/s})$

D. $E_k = 2 \times (3 \text{ kg}) \times (2 \text{ m/s})$



Dec 12 - 4:23 PM

A 3 kg ball is rolling 2 m/s. How much kinetic energy does it have?

$$m = 3 \text{ kg}$$

$$v = 2 \text{ m/s}$$

$$\text{Equation: } E_k = (1/2)mv^2$$

$$E_k = (1/2) \times (3 \text{ kg}) \times (2 \text{ m/s})^2$$

What does $(2 \text{ m/s})^2$ equal?

A. 4

B. 2

C. 1

D. 8

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A 3 kg ball is rolling 2 m/s. How much kinetic energy does it have?

$$m = 3 \text{ kg}$$

$$v = 2 \text{ m/s}$$

$$\text{Equation: } E_k = (1/2)mv^2$$

$$E_k = (1/2) \times (3 \text{ kg}) \times (2 \text{ m/s})^2$$

$$E_k = (1/2) \times (3 \text{ kg}) \times (4 \text{ m}^2/\text{s}^2)$$

So, $E_k = ?$

A. 6

B. 8

C. 4

D. 9

E. 10

12/2

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$$\text{Equation: } E_k = (1/2)mv^2$$

$$E_k = (1/2) \times (3 \text{ kg}) \times (2 \text{ m/s})^2$$

$$E_k = (1/2) \times (3 \text{ kg}) \times (4 \text{ m}^2/\text{s}^2)$$

$$E_k = 6$$

What are the units for E_k ?

A. $E_k = 6 \text{ J}$ 

B. $E_k = 6 \text{ N}$

C. $E_k = 6 \text{ m}$

D. $E_k = 6 \text{ w}$

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What is the kinetic energy of a 45 kg object moving at 13 m/sec?

$$E_k = \frac{1}{2} m v^2$$
$$\frac{1}{2} (45) \cdot (13)^2$$
$$\frac{1}{2} (45) \cdot 169$$
$$\frac{1}{2} (7605)$$
$$3802.5 \text{ J}$$

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A 6 kg rock is thrown with a velocity of 10 m/sec.
What is the kinetic energy of the rock?

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