



Energy Breakout Solutions

A  **6**


A hamster can do 50 Joules of work in 5 seconds. How many hamsters would be needed to power a 60 W light bulb?

B  **8**


Calculate the kinetic energy of a 62.5 g baseball flying through the air at 16 m/s


C  **5**

Roughly how fast is a 0.2 kg banana moving when it hits the ground if it's dropped from 1.25 m?


 $m = 80 \text{ kg}$

$PE = 215 \text{ J}$
 $KE = 425 \text{ J}$


 $v = 4 \text{ m/s}$




P U S H



6 8 5



6 3 5 4



4 2 5

	Level 1	Level 2
1	3 J	22.80 m/s
2	4 J	18.44 m/s
3	6 J	21.45 m/s
4	2 J	16.73 m/s
5	1 J	17.32 m/s
6	8 J	14.83 m/s
7	5 J	24.08 m/s
8	7 J	13.42 m/s



If it takes 150 N of force to push a 30 kg stroller 5 meters across the floor, what is the work done? *



What is the power of a car engine if it can output 12,000 joules of work to travel 50 meters in 8 seconds? *



A piano is lifted 40 meters in 10 seconds. If 1,000 J of work were done in lifting this piano, what was the average force used? *



How much work would be required to power a 60 W light bulb for 45 seconds? *

750 J

1500 W

225 N

2700 J

KE = 1,720 J

 4 m/s


6

PE = 1,750 J

 10 kg


3

KE = 1,850 J

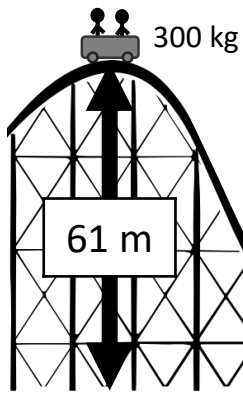
 148 kg

5

PE = 2,000 J

 4 m

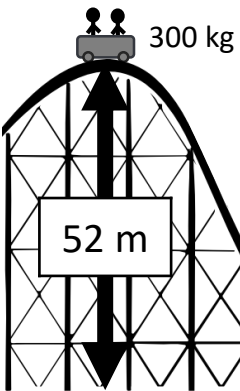
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What is the speed of the roller coaster car as it rolls over the second hill if it starts as shown with a velocity of 0 m/s?

22.80 m/s

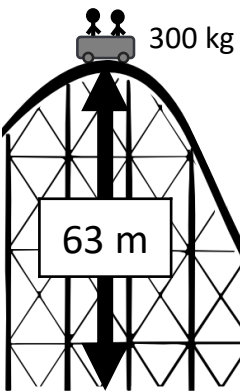
Group 1



What is the speed of the roller coaster car as it rolls over the second hill if it starts as shown with a velocity of 0 m/s?

18.44 m/s

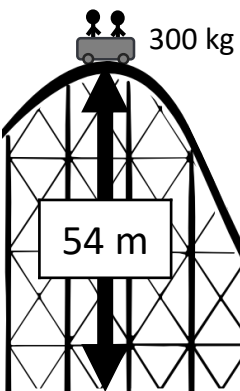
Group 2



What is the speed of the roller coaster car as it rolls over the second hill if it starts as shown with a velocity of 0 m/s?

21.45 m/s

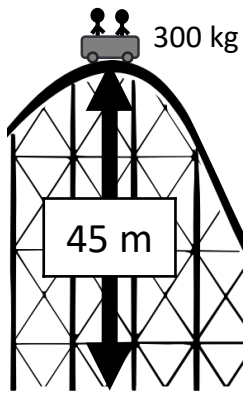
Group 3



What is the speed of the roller coaster car as it rolls over the second hill if it starts as shown with a velocity of 0 m/s?

16.73 m/s

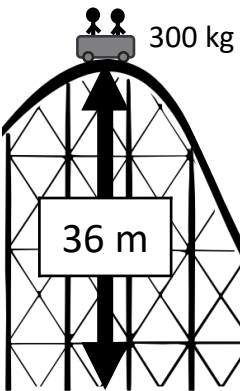
Group 4



What is the speed of the roller coaster car as it rolls over the second hill if it starts as shown with a velocity of 0 m/s?

17.32 m/s

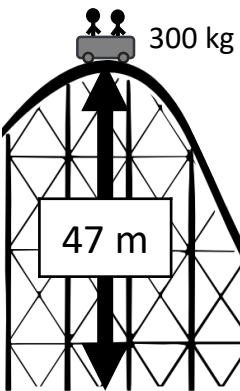
Group 5



What is the speed of the roller coaster car as it rolls over the second hill if it starts as shown with a velocity of 0 m/s?

14.83 m/s

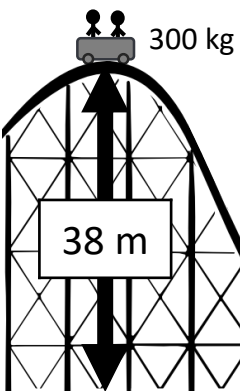
Group 6



What is the speed of the roller coaster car as it rolls over the second hill if it starts as shown with a velocity of 0 m/s?

24.08 m/s

Group 7

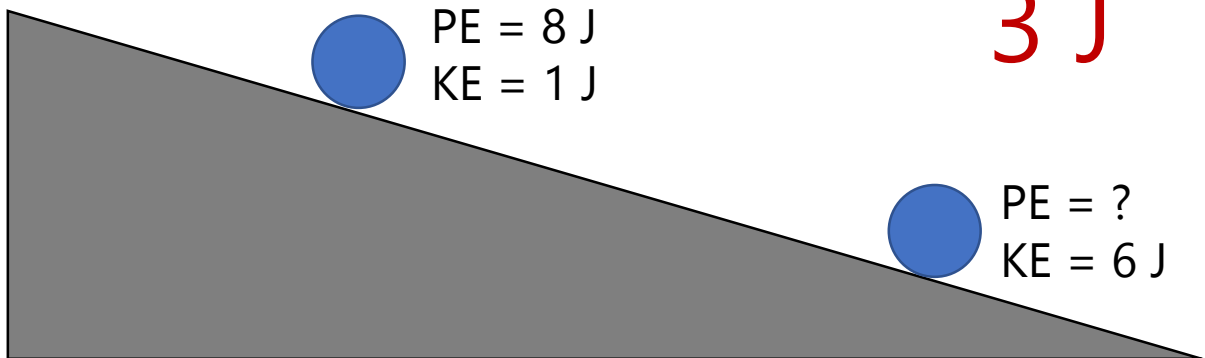


What is the speed of the roller coaster car as it rolls over the second hill if it starts as shown with a velocity of 0 m/s?

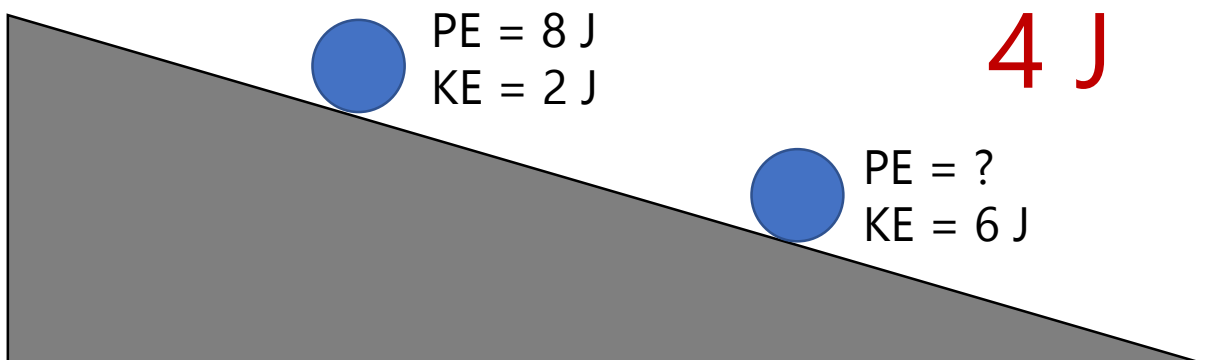
13.42 m/s

Group 8

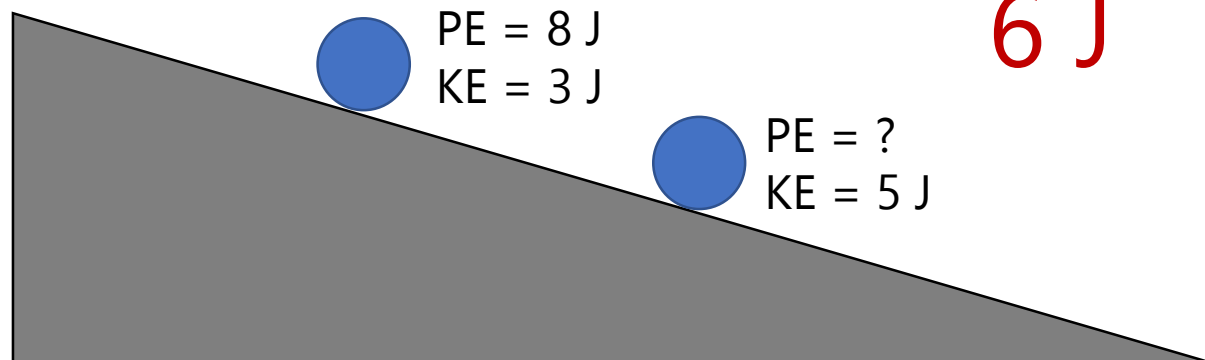
Group 1



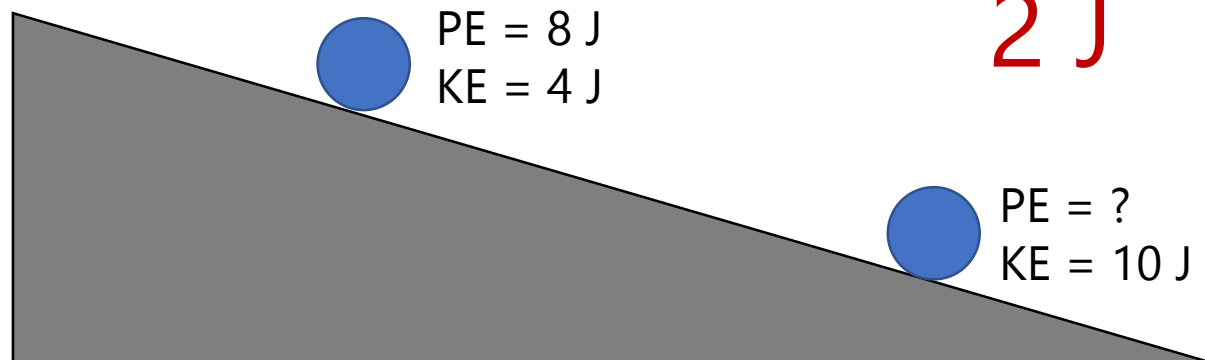
Group 2



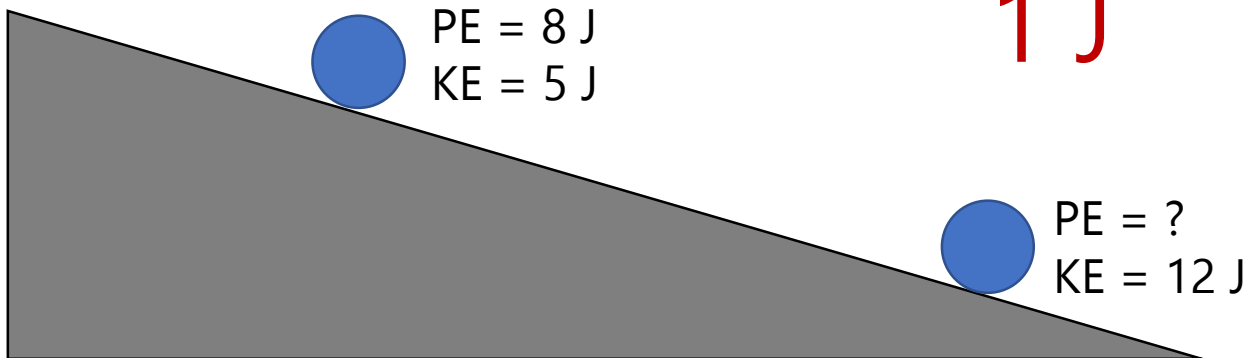
Group 3



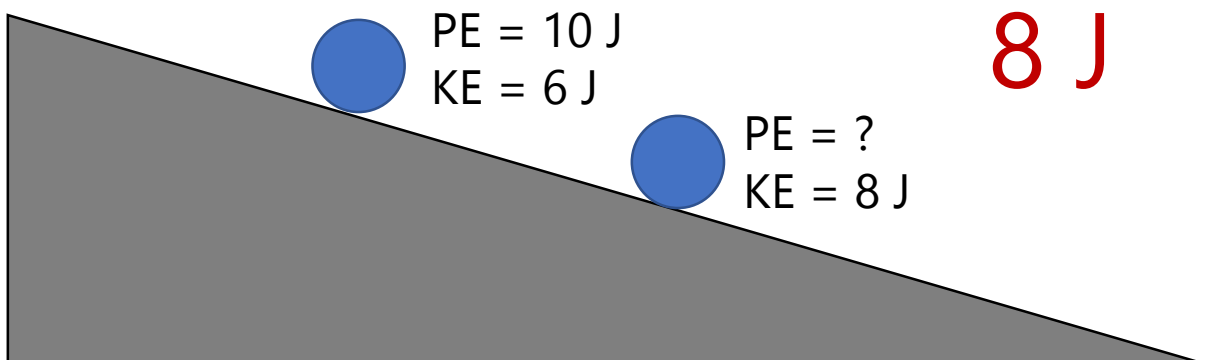
Group 4



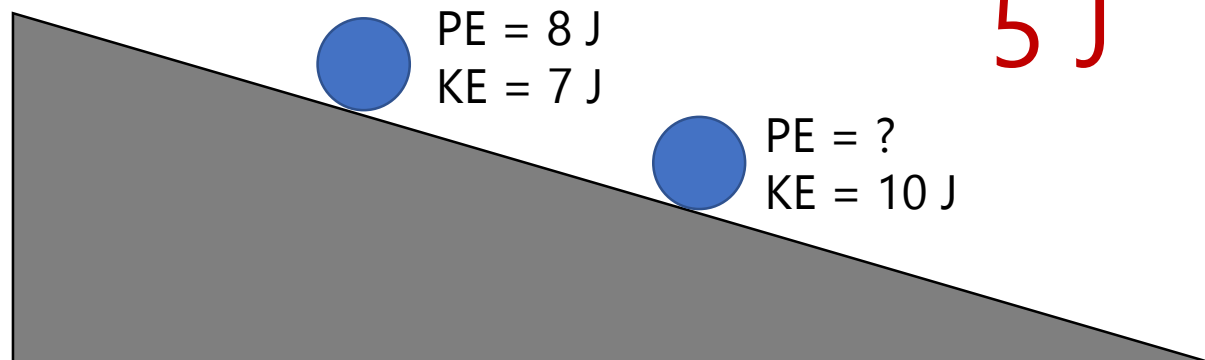
Group 5



Group 6



Group 7



Group 8

