

GCSE Physics A (Gateway) J249/02 Physics A P5-P8 and P9 (Foundation Tier)

Question Set 29

Multiple Choice Questions

P7: Energy

- 1 Which wall would allow the **most** heat transfer through the wall?
 - A hick wall made from a material with high thermal conductivity.
 - **B** A **thick** wall made from a material with **low** thermal conductivity.
 - **C** A **thin** wall made from a material with **high** thermal conductivity.
 - **D** A **thin** wall made from a material with **low** thermal conductivity.

Your answer C

2 A radio transfers 30 J of potential energy to 27 J of useful energy.

What is the efficiency and energy loss for the radio?

	Efficiency	Energy loss	
Α	10%	3J	
В	10%	27J	
С	90%	3J	
D	90%	27J	

$$\frac{30}{30}$$
 x 100

= $\frac{3}{30}$ x 100

= 10%

= 10%

so 90% efficient

Your answer [1]

3 A boy kicks a football with a mass of 400 g.

What is the potential energy of the football when it is 0.8 m above the ground?

gravitational field strength (g) = 10 N/kg.

D 3 200 J

Your answer



4 A student wants to find out which heater produces the largest temperature rise.

Look at the results she collects and the calculations she makes.

Heater	Starting temperature (°C)	Finishing temperature (°C)	Change in temperature (°C)
Α	18	28	20
В	18	36	16
С	18	44	26
D	18	51	23

Which heater has results that are correctly calculated?

Your answer

C

[1]

5 A vehicle has an input power from fuel of 20 kW and a useful output power of 6 kW.

20-6= 14KW

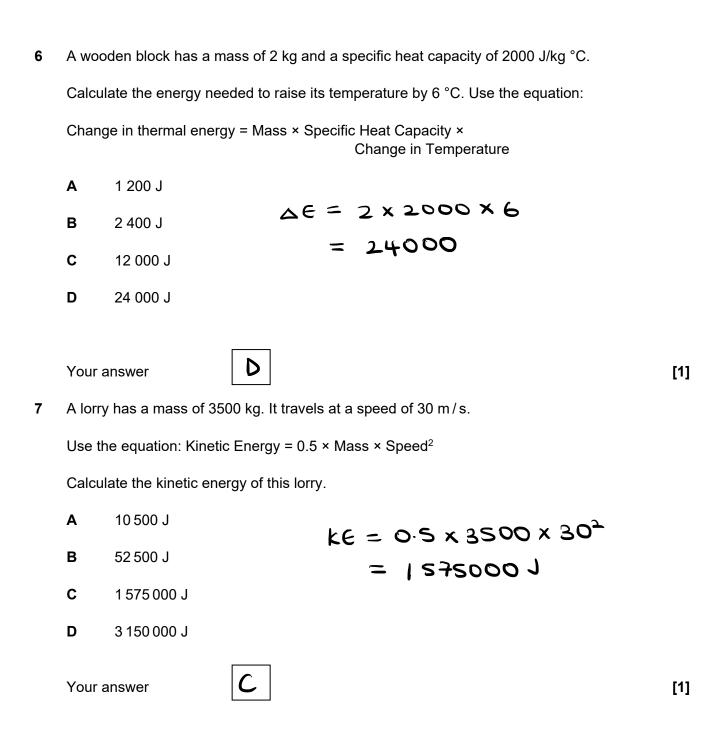
Calculate the power it wastes.

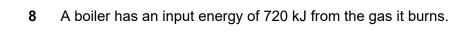
- **A** 3 kW
- **B** 6 kW
- **C** 14 kW
- **D** 20 kW

Your answer

C

[1]





Use the equation: efficiency = useful output energy transfer ÷ total

input energy transfer

- Α 0.12
- $eff = \frac{540}{720} = 0.75$

It transfers 540 kJ of useful energy to the home. What is the efficiency of the boiler?

- В 0.75
- С 0.90
- D 1.33

Your answer



[1]

A runner has a mass of 80 kg and moves at a speed of 5 m/s. 9

Calculate the kinetic energy of the runner.

Use the equation: kinetic energy = $0.5 \times \text{mass} \times (\text{speed})^2$

- Α 200 J
- KE = 0.5 x 80 x 52
- В 1000 J

10001

- С 2000 J
- D 40 000 J

Your answer



[1]

Total Marks for Question Set 29: 9



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