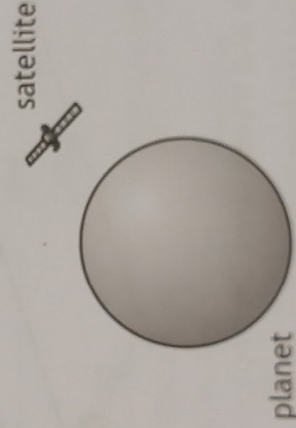


3. A rocket is taking off from the surface of the Earth. The rocket engines exert a force on the exhaust gases.
Which of the following is the reaction to this force?
- A The force of the Earth on the exhaust gases.
 - B The force of the Earth on the rocket engines.
 - C The force of the rocket engines on the Earth.
 - D The force of the exhaust gases on the Earth.
 - E The force of the exhaust gases on the rocket engines.

4. A motor raises a mass of 2400 kg vertically through a height of 5.0 m in 2 minutes.
The minimum power rating of the motor to raise the mass is

- A 100 W
- B 980 W
- C 24 000 W
- D 59 000 W
- E 120 000 W.

5. A satellite is in circular orbit around a planet.



A group of students make the following statements about the satellite in orbit:

- I The horizontal speed of the satellite is constant.
- II The satellite does not move.
- III While orbiting the planet the satellite is weightless.

Which of these statements is/are correct?

- A I only
- B II only
- C III only
- D I and III only
- E II and III only

6. A pulse of light from a laser is transmitted from the Earth to the Moon, The light reflects from a mirror on the Moon and is detected back on Earth 2.6 s after being transmitted.
The distance from the Earth to the Moon is
- A 8.8×10^2 m
 - B 1.2×10^8 m
 - C 2.3×10^8 m
 - D 3.9×10^8 m
 - E 7.8×10^8 m.

7. The table shows the altitude and period of four satellites.

Satellite	Altitude (km)	Period (minutes)
International Space Station	408	93
AprizeSat-3	686	
Intelsat-18	35 800	1440
Hubble Space Telescope	537	95

The period of the AprizeSat-3 satellite is

- A 85 minutes
- B 94 minutes
- C 98 minutes
- D 1440 minutes
- E 1600 minutes.

8. A student makes the following statements about the Universe:
- I One light-year is the time taken for light to travel from the Sun to the Earth.
 - II The approximate age of the Universe is 13.8 billion years.
 - III The 'Big Bang' theory describes the origin of the Universe.

Which of these statements is/are correct?

- A II only
- B III only
- C I and III only
- D II and III only
- E I, II and III