

Space & Astronomy Basic Algebra

Basic Algebra · Answer Key · 10 Questions

1. The Moon takes about 27 days to orbit Earth once. Using the expression $27m$ for total days, how many days pass during $m = 3$ orbits?

- A) 54 days
- B) 81 days**
- C) 108 days
- D) 135 days

2. Jupiter has 95 moons. If Mars has m moons and Jupiter has 47.5 times as many moons ($47.5m = 95$), how many moons does Mars have?

- A) 1
- B) 2**
- C) 4
- D) 8

3. Using the distance formula $d = r \times t$, where light speed $r = 300,000$ km/s, how far (d) does light travel in $t = 5$ seconds?

- A) 600,000 km
- B) 1,200,000 km
- C) 1,500,000 km**
- D) 3,000,000 km

4. A rock sample from Saturn's rings has mass $M = x + y$, where ice mass $x = 85$ g and dust mass $y = 15$ g. What is M ?

- A) 70 g
- B) 90 g
- C) 100 g**
- D) 115 g

5. Venus orbits the Sun in 225 Earth days. In the formula $y = 225x$, how many Earth days (y) pass during $x = 4$ Venus orbits?

- A) 450 days
- B) 675 days
- C) 900 days**
- D) 1,000 days

6. Mars gravity is about 0.38 times Earth's gravity ($g = 0.38 \times E$). If $E = 100$ kg on Earth, what is the weight g on Mars?

A) 19 kg

B) 38 kg

C) 50 kg

D) 76 kg

7. A space agency models telescope operational cost in millions as $P = 4n$. If the total cost $P = 20$ million, solve for n .

A) 4

B) 5

C) 6

D) 8

8. Solar panels on the Space Station generate power using $P = 30w$, where w is active wings. If power $P = 120$ kW, what is w ?

A) 2

B) 3

C) 4

D) 6

9. The formula to convert Kelvin to Celsius is $C = K - 273.15$. If a cosmic sensor measures $K = 300$ K, what is C in Celsius?

A) 16.85°C

B) 26.85°C

C) 36.85°C

D) 273.15°C

10. Sound travels in Earth's air at 340 m/s. Using distance $d = 340t$, how far does sound travel in $t = 10$ seconds?

A) 1,700 meters

B) 3,400 meters

C) 6,800 meters

D) 34,000 meters