Maths quiz

Education in Chemistry
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Use this short quiz to help you identify which students might be struggling with maths skills and where. It will highlight topics to target, and could even inform conversations with your school's maths and physics departments.

Quiz questions

1. Rearrange $y = 3x^2 + 4$ to make x the subject of the equation.

2. If $y = 2\sqrt{x}$, what happens to the value of y if x increases by a factor of 9?

3. If $E = hf$ and $c = f\lambda$, what is E in terms of h, c and λ?

4. If two moles of a substance have a mass of 46.0 g, what is the mass of a single atom in kilograms? ($L = 6.022 \times 10^{23}$)

5. What is $\frac{14x}{7} \div \frac{5x}{2}$?

6. A car travelling at 60 kmh^{-1} completes a race in 2.5 minutes. How long is the racetrack in metres, assuming the car travels at a constant speed the whole time?

7. What is 1.80576 to four significant figures?

8. Which number is larger: 1,376,891 or 1.904 x 10^5?

9. A baseball pitcher throws 18.44 m away from the batter. The world record for pitching speed is approximately 169.1 kmph. How long does it take for the ball to travel from the pitcher to the batter? Give your answer in seconds to three significant figures.

10. Two aeroplanes have the same kinetic energy. One aeroplane has a mass of 15,000 kg and is travelling at 50 ms^{-1}. The second aeroplane has half the mass of the first aeroplane. At what speed is it travelling?

Quiz answers

1. $x = \sqrt{\frac{y-4}{3}}$

2. y will increase by a factor of 3.

3. $E = \frac{hc}{\lambda}$

4. 3.82×10^{-26} kg

5. $\frac{28x}{35x} = \frac{4}{5}$

6. 2,500 metres (2.5 km)

7. 1.806

8. 1,376,891 is larger

9. 0.393 seconds

10. 70.7 ms^{-1}