Year 8 Sequences, Functions and Graphs – Challenge

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Year 8 · Maths · Sequences, Functions and Straight-Line Graphs · Level 3 Challenge · 8 questions

Name _____ **Date** _____

A. Think like a mathematician

1. Bike hire company A charges y = 4x + 15 dollars and company B charges y = 9x dollars for x hours. Where do the two graphs intersect, and what does this mean? Which company is cheaper for 6 hours?

Answer _____

2. A bath is filled from the hot tap only, and then from both taps together. The depth–time graph has two straight parts. Describe and explain the shape of the graph.

Answer _____

3. Two candles are lit together. Candle A is taller but burns faster. Their height–time graphs cross. What does the crossing point show?

Answer _____

4. Lina says the line $y = 3x - 2$ passes through the point (2, 4). Is Lina right? Explain.

Answer _____

5. Gus says every straight line through the origin has a y-intercept of 0. Is Gus right? Explain.

Answer _____

6. Ivo says the line $y = 5 - 2x$ has gradient 5. Is Ivo right? Explain.

Answer _____

7. Farah says the nth term of 9, 14, 19, 24, … is n + 5, because the terms go up by 5. Explain the mistake and find the nth term.

Answer _____

8. Dina says the line y = 4 + 4x has gradient 4 and y-intercept 4. Explain the mistake.

Answer _____