1. Find the value of $3x^2 - 2y$ when $x = 4$ and $y = 5$.

   _____

2. Simplify $(x^2 - 2x)/(x^2 - 5x + 6)$.

   ☐ $x - 3$

   ☐ $(x - 2)/(x - 3)$

   ☐ $x/(x - 2)$

   ☐ $x/(x - 3)$

3. $(5x^3)^2 = k \cdot x^6$. What is the coefficient k?

   _____

4. Solve $2x + y = 7$ and $3x - y = 8$. What is x?

   _____

5. Solve $-3 \le 3x - 2 < 7$. The solution is $-1/3 \le x < ?$ What is the upper bound?

   _____

6. The nth term of 2, 5, 8, 11, … is $3n - 1$. What is the 10th term?

   _____

7. Inverse proportion $y \propto 1/x$ means:

   ☐ $y = kx^2$

   ☐ $y = k/x$

   ☐ $y = x + k$

   ☐ $y = kx$

8. On a distance–time graph, the gradient represents the:

   ☐ acceleration

   ☐ speed

   ☐ time

   ☐ distance

9. The roots of a graph are where it:

   ☐ crosses the x-axis ($y = 0$)

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   ☐ turns around

   ☐ is steepest

10. For $f(x) = 2x$ and $g(x) = x + 3$, $gf(x)$ and $fg(x)$ give the same result.

    ☐ True ☐ False

1. **38**

   $3 \times 4^2 - 2 \times 5 = 3 \times 16 - 10 = 48 - 10 = 38$.

2. **$x/(x - 3)$**

   Factorise: $x(x-2) / [(x-2)(x-3)]$, cancel $(x-2) \to x/(x-3)$.

3. **25**

   $(5x^3)^2 = 5^2 \times (x^3)^2 = 25x^6$, so $k = 25$.

4. **3**

   Adding the equations: $5x = 15$, so $x = 3$ (then $y = 1$).

5. **3**

   Add 2: $-1 \le 3x < 9$; divide by 3: $-1/3 \le x < 3$.

6. **29**

   $3 \times 10 - 1 = 30 - 1 = 29$.

7. **$y = k/x$**

   Inverse proportion: as x rises, y falls, given by $y = k/x$.

8. **speed**

   Distance ÷ time = speed, which is the gradient.

9. **crosses the x-axis ($y = 0$)**

   Roots are the x-values where $y = 0$ – where the curve meets the x-axis.

10. **False**

    $gf(x) = 2x + 3$, but $fg(x) = 2(x+3) = 2x + 6$. The order matters.

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