# Mathematics Questionnaire

1. If f(x) = 2x + 3 and g(x) = x - 1, what is (f o g)(x)?
   a) 2x + 2  b) 2x + 1  c) 2x + 5  d) 2x - 1

2. The graph of f(x) = (x - 3)^2 is a parabola shifted left by 3 units. (True/False)

3. What is the inverse of f(x) = 5x - 2?
   a) (x+2)/5  b) (x-2)/5  c) 5x + 2  d) x - 2

4. The function f(x) = x^2 + 3x + 2 is one-to-one. (True/False)

5. If f(x) = 2^x, what happens to its graph when transformed to f(x) = 2^(x+1)?
   a) Left by 1  b) Right by 1  c) Up by 1  d) Down by 1

6. What is the remainder when x^3 - 2x + 5 is divided by x - 1?
   a) 2  b) 3  c) 4  d) 5

7. The graph of a cubic polynomial can have at most 3 x-intercepts. (True/False)

8. If a polynomial has a factor (x - 2), then x = 2 is a root. (True/False)

9. What is the degree of the polynomial (x^2 - 1)(x + 3)?
   a) 2  b) 3  c) 4  d) 5

10. Which of the following is equal to sin^2(x) + cos^2(x)?
    a) 0  b) 1  c) tan^2(x)  d) sec^2(x)

11. The equation tan(x) = sin(x)/cos(x) is always true. (True/False)

12. If sin(x) = 1/2, what is x in degrees?
    a) 15°  b) 30°  c) 45°  d) 60°

13. The function f(x) = 1/x has a vertical asymptote at x = 0. (True/False)

14. What is the horizontal asymptote of f(x) = (3x + 1)/(x - 2)?
    a) y = 0  b) y = 3  c) y = 1  d) No horizontal asymptote

15. The graph of f(x) = (x^2 - 4)/(x - 2) has a hole at x = 2. (True/False)