**End of Unit Test** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Sequences, Functions and Graphs - HIGHER**

**1.** Sketch the graphs of:

(a) *y* = *x*2  (b) *y* = *x*3  (c)

  

**(Total 3 marks)**

**2.** (a) Line M has the equation 3x + 2y = 7. Circle the gradient of line M.



**(1)**

(b) Line N has the equation $y=5- \frac{3}{4}x$

Circle the gradient of a line that is perpendicular to line N.



**(1)**

**(Total 2 marks)**

**3.** On each grid, the graph of *y* = *x*2 is shown dashed to help you.

 (a) Sketch the graph of *y* = *x*2 + 5 on the grid.

 

**(1)**

(b) Sketch the graph of *y* = (*x* − 3)2 on the grid.

  

**(1)**

**(Total 2 marks)**

**4.** Work out an expression for the *n*th term of the quadratic sequence

11           15           21           29           39           .....

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*n*th term = .......................................................................

**(Total 4 marks)**

**5.** f(*x*) = 3*x.* Circle the expression for f–1(*x*)



**(Total 1 mark)**

**6.** f(*x*) = 2*x* + *c* g(*x*) = *cx* + 5 fg(*x*) = 6*x* + *d*

*c* and *d* are constants. Work out the value of *d*.

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Answer ............................................

**[Total 3 marks]**

**7.** The diagram shows the circle *x*² + *y*² = 10. *P* lies on the circle and has *x*-coordinate 1. The tangent at *P* intersects the *x*-axis at *Q*. Work out the coordinates of *Q*.

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Answer (......................, ......................)

**(Total 5 marks)
(Total for test = 20 marks)**