Year 9 Homework Assessment TEST 2 Calculator allowed Enhanced

NAME \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ TEACHER \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Circles and Pythagoras | /10 | Ratio | /10 | Sequences | /10 |

|  |  |  |
| --- | --- | --- |
|  | **Circles and Pythagoras Theorem** |  |
| **1.**  **F** | The diagram shows a tile.  15 cm  The tile is a semicircle of diameter 15 cm.  Work out the perimeter of the tile.  Give your answer correct to one decimal place.     ………………………… cm | **(2)** |
| **2.**  **F** | The diagram shows a semicircle drawn inside a rectangle.  13 cm  Work out the area of the shaded region. Give your answer correct to 3 s.f.        ………………………… cm² | **(2)** |
| **3.**  **F**  12 cm  7 cm | Work out the area of the triangle.           ………………………… cm² | **(3)** |
| **4.**  **M** | *ABCD* is a trapezium.  *AD* = 12 cm *AB* = 10 cm *BC* = 4 cm Angle *ADC* = angle *BCD* = 90°  Calculate the area of the trapezium ABCD.    4 cm  12 cm  10 cm  A  B  C  D          ………………………… cm | **(3)** |
|  |  | **(10)** |
|  | **Ratio** |  |
| **1.**  **F** | Lewis has a copper pipe with a length of 1.5 m and a mass of 800 grams. He cuts a piece of the copper pipe with a length of 70 cm. Work out the mass of this piece of copper pipe.   ………………………… grams | **(3)** |
| **2.**  **S** | The mass of 8 m3 of copper is 44 800 kg.  a) Work out the density of copper.  ………………………… kg/m3  The density of zinc is 7125 kg/m3.  b) Work out the mass of 5 m3 of zinc.  ………………………… kg | **(2)**  **(2)** |
| **3.**  **F** | *y* is directly proportional to *x*.  When *x* = 5, *y* = 80  a) Find a formula for *y* in terms of *x*.        y = …………………………  b) Calculate the value of y when *x* = 40    y = ………………………… | **(2)**  **(1)** |
|  |  | **(10)** |
|  |  |  |
|  | **Sequences** |  |
| **1.**  **S** | Here are the first five terms of a number sequence.  -6        -10        -14        -18        -22  Write an expression, in terms of *n*, for the *n*th term of this sequence.           ………………………… | **(2)** |
| **2.**  **F** | The *n*th term of a sequence is 5*n*2 + 8  Find the 10th term of this sequence.    ………………………… | **(2)** |
| **3.**  **M** | A sequence t1, t2, t3, ... satisfies tn + 1 = 3tn − 1  Given that t1 = 9,  Find the value of t2 and the value of t3, t2 = ………………… t3 = ………………… | **(2)** |
| **4.**  **M** | A sequence of numbers a1, a2, a3... is defined by an + 1 = 4an − 7,  Given that a2 = 5,  Find the value of a1  *a*1 = ………………… | **(2)** |
| **5.**  **M** | Here are the first four terms of a **quadratic** number sequence.  0 5 12 21  Write an expression, in terms of *n*, for the *n*th term of this sequence.           ………………………… | **(2)** |
|  |  | **(10)** |
|  |  |  |