**YEAR 10 TEST 2 Review Homework Calculator allowed Higher**

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Teacher \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Shape 1** | **/12** | **Proportion** | **/15** | **Sequences** | **/15** | **Probability** | **/10** |

10 cm

16 cm

11 cm

|  |  |  |
| --- | --- | --- |
|  | **Shape: Circles + Pythagoras** |  |
| **1.****F** | The diagram shows a trapezium and a semicircle.Work out the shaded area. Give your answer correct to 3 significant figures.…………………… cm2 | **(3)** |
| **2.****F** | *OAB* is a sector of a circle, centre *O*.The radius of the circle is 15 cm.The angle of the sector is 30°.Calculate the perimeter of sector *OAB*.Give your answer correct to 3 significant figures.…………………… cm2 | **(3)** |
| **3.****F** | Work out the length of *PQ*. Give your answer to 3 significant figures.**………………………… cm** | **(3)** |
| **4.****F** | *ABC* is a right-angled triangle. *AC* = 6 cm *AB* = 13 cmWork out the area of triangle ABC.Give your answer correct to 3 significant figures.…………………… cm | **(3)** |
|  | **Algebra: Direct and Inverse Proportion** |  |
| **1.****S** | Peter goes for a walk. He walks 15 miles in 2 hours 30 minutes.Work out Peter's average speed in miles per hour.…………………… m.p.h. | **(2)** |
| **2.****F** | A solid metal cylinder has a mass of 1180 g. The cylinder has a radius of 5 cm and a height of 8 cm. Find the density of the metal. Give your answer to 3 significant figures.…………………… g/cm3 | **(2)** |
| **3.****S** | *y* is directly proportional to *x*.When *x* = 10, *y* = 600.Calculate the value of *y* when *x* = 540.    *y* = …………………………  | **(3)** |
| **4.****F** | *T* is inversely proportional to *d.**T* = 160 when *d* = 8.Find the value of *d* when *T* = 2560.d = ………………………… | **(3)** |
| **5.****M** | *y* is directly proportional to the square of *x.*When *y* = 5, *x* = 4.a) Find the formula connecting *y* and *x*.……………………b)     Work out the value of *x* when *y* = 0.8.*x* = …………………… | **(3)****(2)** |
|  | **Algebra: Sequences** |  |
| **1.****S** | Here is an arithmetric progression. 4 7 10 13 16 ……a) Work out the *n*th term for this sequence.…………………………………………a) Work out the *50*th term for this sequence.………………………………………… | **(2)****(1)** |
| **2.****F** | Here is a sequence

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ………… | 2 | 3 | 4.5 | 6.75 | ………… |

a) Work out the common ratio for this geometric sequence……………………b) Work out the 6th term of the sequence……………………c) Work out the 1st term of the sequence…………………… | **(1)****(1)****(1)** |
| **3.****S** | The *n*th term of a sequence is 2*n*2 – 2nFind the 5th term of this sequence. ………………………… | **(1)** |
| **4.****F** | Here are the first five terms of a quadratic number sequence.2 6 12 20 30 … …Write an expression, in terms of *n*, for the *n*th term of this sequence.        ………………………… | **(3)** |
| **5.****F** | Here are the first five terms of a quadratic number sequence.99 96 91 84 75 … …Write an expression, in terms of *n*, for the *n*th term of this sequence.        ………………………… | **(3)** |
| **6.****M** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1,  | 1,  | 2,  | 3,  | 5,  | 8, … |

The sequence above is a Fibonacci sequenceContinue this algebraic Fibonacci sequence

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2a ,  | 5b,  | 2a + 5b,  | ………………………… | ………………………… |

 | **(2)** |
|  | **Probability** |  |
| **1.****S** | In a cafe, a customer orders one drink.The probability that he orders tea is 0.52The probability that he orders coffee is 0.2Work out the probability that he orders **either** tea **or** coffee.…………………… | **(1)** |
| **2.****S** | A shop sells red tulips and white tulips in the ratio 7 : 3What is the probability that a tulip, sold at random, is red?…………………… | **(1)** |
| **3.****F** | The probabilities of whether a student, picked at random from a school, is vegetarian or not are shown in this table.

|  |  |  |  |
| --- | --- | --- | --- |
|   |  | **Boys** | **Girls** |
|   | **Vegetarian** | 0.08 | 0.15 |
|   | **Non-vegetarian** | 0.45 | 0.32 |

 a)     What is the probability that a student chosen at random is a female vegetarian?………………b)     What is the probability that a student chosen at random from is vegetarian?………………c)     There are 24 boys in the school who are vegetarian. How many students are there in the school altogether?……………… | **(1)****(1)****(2)** |
| **4.****M** | A bag contains 7 mint sweets, 3 fruit sweets.Sam chooses two sweets from the bag at random.Calculate the probability that she chooses one mint sweet and one fruit sweet. | **(4)** |