**Year 10 Revision HW ASSESSMENT 2 CALCULATOR Core Standard**

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

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| Shape 1 | /10 | Proportion | /10 | Sequences | /10 | Probability | /10 |

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|  | **Shape 1** |  |
| **1.** | *ABCD* is a trapezium. Angle *A =* 90°. Angle *D =* 90°. *AB* = 7 cm. *AD* = 8 cm. *DC =* 13 cm.  Work out the area of the trapezium.    …………………………………… | **(3)** |
| **2.** | Diagram **NOT**  accurately drawn  *OAB* is a sector of a circle, centre *O*.  Angle *AOB* = 60º. *OA* = *OB* = 12 cm.  Work out the length of the arc *AB*. Give your answer to 3 significant figures.  ………………………………… | **(3)** |
| **3.** | The diagram shows a circle inside a square.  *ABCD* is a square of side 10 cm. Each side of the  square is a tangent to the circle. Work out the total  area of the shaded regions. Give your answer to 3 s.f.    ……………………………… | **(4)** |
|  | **TOTAL** | **/10** |
|  | **Proportion** |  |
| **1.** | Talil is going to make some concrete mix. He needs to mix cement, sand and gravel in the ratio **1 : 3 : 5** by weight. Talil wants to make 180 kg of concrete mix.  Talil has  **15 kg** of cement **85 kg** of sand **100 kg** of gravel  Does Talil have enough cement, sand and gravel to make the concrete mix? | **(4)** |
| **2.** | Here are the ingredients needed to make **8** shortbread biscuits.    Tariq is going to make some shortbread biscuits.  He has the following ingredients    Work out the greatest number of shortbread biscuits that Tariq can make with his ingredients. You must show all your working.  ........................................................... biscuits | **(3)** |
| **3.** | Jack is building a wall.  He uses 300 bricks to build part of the wall.  This part of the wall is 5 metres long and 1.5 metres high.  The complete wall will be 8 metres long and 1.5 metres high.  How many more bricks does Jack need to complete the wall?  ........................................................... | **(3)** |
|  | **TOTAL** | **/10** |
|  |  |  |
|  | **Algebra - Sequences** |  |
| **1.** | Here are the first five terms of an arithmetic sequence.  5           12           19           26           33  (a)  Write down an expression, in terms of *n*, for the *n*th term of the sequence.  ………………………………………  The expression 4*n*2 − 5 is the *n*th term of a different sequence.  (b)  Find the 3rd term of this sequence.   ........................................................... | **(3)** |
| **2.** | Here are the first 5 terms of a quadratic sequence.  1           3            7           13           21  Find an expression, in terms of *n*, for the *n*th term of this quadratic sequence.  …........................ | **(3)** |
| **3.** | Work out the common ratio and the 8th term in this geometric sequence    8, 12, 18, 27, ……………  Common Ratio = ………………… 8th term = ………………… | **(2)** |
| **4.** | Write down the next three terms in this Fibonacci-type sequences.  1, 5, 6, 11, ………… , …………, ………… | **(2)** |
|  | **TOTAL** | **/11** |
|  | **Probability** |  |
| **1.** | Sameena has a round pencil case and a square pencil case.  There are 4 blue pens and 3 red pens in the round pencil case.  There are 3 blue pens and 5 red pens in the square pencil case.  Sameena takes at random one pen out of each pencil case.   1. Complete the probability tree diagram.      1. Work out the probability that the pens Sameena takes are both red.   ........................................................... | **(4)** |
| **2.** | There are 10 pens in a box.  There are *x* red pens in the box.  All the other pens are blue.  Jack takes at random one pen from the box.  Find an expression, in terms of *x*, for the probability that Jack takes a blue pen from the box.  Give your answer in its simplest form.  ........................................................... | **(2)** |
| **3.** | 60 people each took a driving test one day.  21 of these people were women.  18 of the 60 people failed their test.  27 of the men passed their test.  (a)  Use this information to complete the frequency tree.    One of the men is chosen at random.  (b)  Work out the probability that this man failed his test.  ........................................................... | **(4)** |
|  | **TOTAL** | **/10** |