**Square Root and Pythagoras’ Theory – Mental Math Test**

**Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Part A: Square Roots 21 marks**

1. **List the first 15 perfect square roots (The first 3 are done for you).**

**\_\_\_/4**

\* **√1 = 1 \* √4 = 2 \* √9 = 3** \* \_\_\_\_\_\_\_\_\_ \* \_\_\_\_\_\_\_\_\_\_

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\* \_\_\_\_\_\_\_\_ \* \_\_\_\_\_\_\_\_\_ \* \_\_\_\_\_\_\_\_\_ \* \_\_\_\_\_\_\_\_\_ \* \_\_\_\_\_\_\_\_\_\_

1. **Estimate the following square roots. Use the 3 step method as a guide:**

 **a)** **√17**

* Between √ \_\_\_\_\_ and √ \_\_\_\_\_\_\_ but closer to √ \_\_\_\_\_\_\_

**\_\_\_/2**

* Answer is between \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_ but closer to \_\_\_\_\_\_\_\_\_\_
* My estimate is \_\_\_\_\_\_\_\_\_\_\_\_\_

**b)** **√50**

**\_\_\_/2**

* Between √ \_\_\_\_\_ and √ \_\_\_\_\_\_\_ but closer to √ \_\_\_\_\_\_\_
* Answer is between \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_ but closer to \_\_\_\_\_\_\_\_\_\_\_
* My estimate is \_\_\_\_\_\_\_\_\_\_\_\_\_

**c)** **√96**

**\_\_\_/2**

* Between √ \_\_\_\_\_ and √ \_\_\_\_\_\_\_ but closer to √ \_\_\_\_\_\_\_
* Answer is between \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_ but closer to \_\_\_\_\_\_\_\_\_\_\_
* My estimate is \_\_\_\_\_\_\_\_\_\_\_\_\_

 **d)** **√187**

**\_\_\_/2**

* Between √ \_\_\_\_\_ and √ \_\_\_\_\_\_\_ but closer to √ \_\_\_\_\_\_\_
* Answer is between \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_ but closer to \_\_\_\_\_\_\_\_\_\_\_
* My estimate is \_\_\_\_\_\_\_\_\_\_\_\_\_
1. **What is the length of each square below. SHOW YOUR THINKING. Include units.**

a) Area = 169 cm2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**\_\_\_/3**

b) Area = 121 cm2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) Area = 6 m2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4.** **What is the area of each square below. SHOW YOUR THINKING. Include units.**

**\_\_\_/2**

a) Length = 7 cm \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) Length = 9 cm \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Marco has a square garden with an area of 64 m2. He wants to put a fence all around this garden. How many meters of fence does he need altogether? Include units.**

**\_\_\_/2**

1. **Stacey has a square garden that has a perimeter of 40 cm. What is the area of this garden? Include units.**

**\_\_\_/2**

**Part B: The Pythagorean Theory 12 marks**



1. **What is the area of the missing square ?**

1. Square A = 33 m2 , Square C = 55 m2, Square B = \_\_\_\_\_\_\_\_

**\_\_\_/3**

1. Square A = 16 m2, Square B = 28 m2, Square C = \_\_\_\_\_\_\_\_
2. Square C = 94 m2, Square B = 12 m2, Square A = \_\_\_\_\_\_\_\_
3. **Which Pythagoras formula would you use to find the missing length of each triangle? (Remember you have a choice of 3).**

**18 m**

1. **b)**

**\_\_\_/2**

**12 m**

**12 m**

**8 m**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Estimate the missing length of each triangle. Show thinking. Include units.**

**7 m**

1. b) c)

**2 m**

**3 m**

**10 m**

**4 m**

**3 m**

**\_\_\_/3**

1. **Suzie leaves home and rides her dirt bike 3 miles east. She then turns north for 4 miles. How far is she from home? Include a simple diagram and show your thinking.**

**\_\_\_/2**

1. **A bow hunter is perched at the top of an 8 meter high tree. He shoots a deer with his bow. The arrow travels 10 meters. How far was the deer from the tree? Include a simple diagram and show your thinking.**

**\_\_\_/2**