# Elementary School Division
# Geometry & Number Theory, Section 3

40 minutes, 20 questions

Instructions

- DO NOT open the test until told to do so.
- Be sure to use your scratch paper!
- Express all of your answers in simplified form.
- Do not include any units.
- Please read the instructions

Please write your name :

Please write your ID number :

**Instructions** : This is Section 3, geometry and number theory. Geometry deals with the properties of shapes, points, lines, etc... Number Theory deals w/ the properties of numbers and solving for big numbers w/ easily with tricks. Again, do not include units.

IF we cannot read your answers, it will be marked wrong.

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**Free Response**

**1.** Given a triangle w/ legs 8 and 6, find the area.

**2.** Add up all of the interior angles in a triangle. How many degrees is that?

**3.** What is the 10th prime number?

**4.** I am describing a number. This number, when multiplied with another number, always ends with a 5 or a 0. What is this number?

**5.** A right triangle has an angle of 39 degrees. What is the missing angle?

**6.** How many different numbers are there that when you divide 100 by that number, you end up with a whole number?

**7.** Refer to diagram #7. What is the area of that trapezoid?

**8.** If James owes Christopher 671 dollars, what is the least number of bills that James could use to pay Christopher?

**9.** Refer to diagram #9. Erin owns 3 iPhones. If each iPhone has a length of 6 inches, a height of 1 inch, and a width of 2 inches, what is the total surface area of all of Erin's iPhones stacked on top of each other?

**10.** Find the largest prime factorization of 105.

**11.** How many even factors does 256 have?

**12.** If Penelope is 7 years old and her older brother is 17, in how many years will Penelope's age be half of her older brother's age?

**13.** What is the Least Common Multiple of 24 and 36?

**14.** What is the area of an equilateral triangle with a side length of 6?

**15.** Find the sum of all positive integers less than 60 that are divisible by 5.

**16.** Find the greatest common denominator of 64 and 96.

**17.** Determine the length of the longest side of a triangle whose legs are 3 and 4.

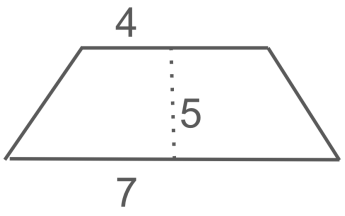
**18.** What is the biggest prime number less than 100?

**19.** What is the 30th prime number?

**20.** Refer to the diagram for #20. Assuming all of the shapes touch point A, what is the value of x if the area of the square is 16?

## Diagrams

7.

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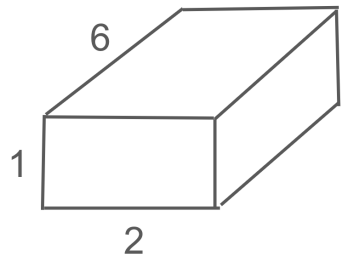


20.