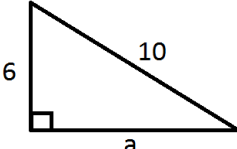
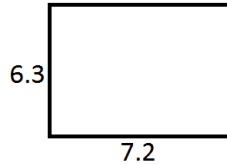


KPMT 2016-2017 Individual 5/6

1. Laura had 116 teacups. She accidentally smashed 9. How many does she have now?
2. If Andy had 8 cookies, and shared them equally between himself and 3 other friends, how many cookies does he have now?
3. What is the probability of flipping a heads with a fair coin?
4. Roy loves to go on road trips. If he drives for 8 hours a day at 50 miles per hour on road trips, how many miles would he have driven after a 2-day trip?
5. Evaluate:  $1 + 2 \times (5 - 6) \div 2 \times 4$
6. What is the probability of rolling an even number on a fair six-sided dice?
7. Michael has 30 pastries, all of which are either croissants, tarts, or strudels. If a third of them are croissants and 7 of them are strudels, how many tarts does he have?
8. What is the probability of picking a red queen from a standard 52-card deck?
9. How many ways can the arrange the letters in the word "CAT"?
10. Evaluate  $2.016 \times 5.6$  (Round your answer to the nearest tenth)
11. Allen can read 800 words per minute. If his book has 300 words per page, how long would it take for him to read the entire 150-page book? (Round your answer to the nearest minute)
12. What is the prime factorization of 2017?
13. Evaluate the following, if  $2^x - 3 = 1$ :  
 $(2^x - 3)(x - 1)(x + 1)$
14. Sabrina has a crush on Jerry. She writes his name over and over on a sheet of paper until she completely runs out of space. She wrote 834 letters before she ran out of space. What was the last letter she wrote?
15. Andy ate half of the jelly beans in a bag. Betty ate 7 more. 5 jelly beans remain. How many jelly beans were originally in the bag?
16. Evaluate  $\sqrt{2 \times 72}$
17. What is the length of side  $a$ ?  

18. Charlie flips a coin 4 times. What is the probability that he gets heads every time?
19. How many positive prime numbers under 30 are there?
20. What is the sum of the number of edges in a heptagon and the number of diagonals in a pentagon?
21. What angle (in degrees) is complementary to  $63^\circ$ ?
22. Diana scored an average of 92 points over 5 tests worth 100 points each. If he aced the first 4 tests, what did he score on the 5<sup>th</sup> test?

23. Evaluate  $(28^2 - 84) / 2$
24. How many ways are there to arrange the letters “K,” “P,” “M,” and “T”?
25. How many positive 4 digit integers are there less than 2000?
26. What is the area of the largest triangle that can fit in this rectangle? Do not round.



27. Eric, Frank, Grace, Harry, and Iris are standing in a line. Grace is not last, and is directly behind Eric. Frank is behind Iris, who is 2<sup>nd</sup> in line. Which position is Harry in?
28. What is the remainder of  $72339 / 8$ ?
29. A product worth \$39.99 is on sale. Jason bought it for \$31.99 (disregard sales tax). Complete the statement: the product had a sale of \_\_\_% off. (Round to nearest %)
30. Kelly drove at 30 miles per hour for 10 minutes and at 60 miles per hour for 20 minutes to get home from work. How far did she drive?
31. If  $a \# b = (a+b)(a-b)$ , what is  $(4 \# 2) \# 6$ ?
32. Lucas invested 2000 dollars at an interest rate of 6% compounded annually. How many years will it take for Lucas’s investment to triple? (Round to nearest year)
33. Michael and Nancy start running from the same place on a 400m track. They run in opposite directions. Michael jogs at 3 m/s while Nancy sprints at 5 m/s. How much time in seconds does it take for them to meet on the other side of the track?
34. Owen’s Low-Cal Burgers serves 1 pound burgers that contain 10 calories each. Patricia, who weighs 120lb, is on a diet, and only eats 1800 calories a day. If she fulfills her diet by only eating Owen’s Low-Cal burgers, what percentage of her weight is she eating?
35. How many rectangles of any size are in this image?



36. On a coordinate plane, what is the distance between the origin and (6, 8)?
37. What is the units digit of  $7^{99}$ ?
38. How many factors does 2016 have?
39. Jerry has a crush on Sabrina. He wants to figure out her birthday. The month and day of her birthday added together is a prime number. When multiplied together, the product has 6 factors. Sabrina was born in Spring. When is her birthday?
40. What is 2017 base 8 expressed as in base 5?