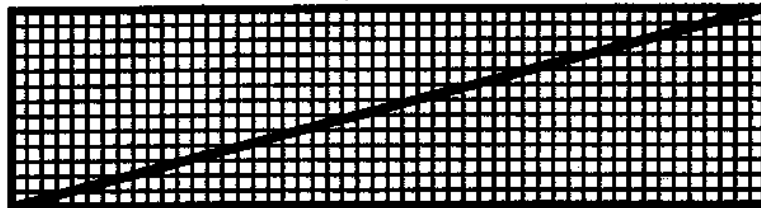


1. How many prime numbers are smaller than the  $\sqrt{2003}$  ? \_\_\_\_\_ 1

2. Two standard dice are rolled, a red one and a blue one.  
Let  $R$  be the number showing on the red die and  $B$  the number showing on the blue die.  
What is the probability that  $R > 2B$  ?  
Write the answer as a common fraction. \_\_\_\_\_ 2

3. How many positive whole numbers smaller than 1000 are either multiples of 9 or multiples of 11 ? \_\_\_\_\_ 3

4. A  $50 \times 13$  rectangle is divided into  $1 \times 1$  squares by lines parallel to the sides



of the rectangle. A diagonal of the rectangle is drawn.  
How many of the  $1 \times 1$  squares does the diagonal pass through ? \_\_\_\_\_ 4

Grade Six (6) Division

5. You have five playing cards: an ace, a king, a queen, a jack, and a ten.  
In how many different orders can you put the cards if  
the king and the queen are always next to each other ?

\_\_\_\_\_ 5

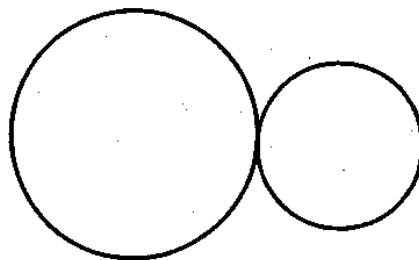
6. The number 999,999 is multiplied by 999.  
How many 9's are there in the answer ?

\_\_\_\_\_ 6

7. The first number in a sequence is 2, and the second number is 3.  
Each new number is obtained by dividing the previous number  
by the one before that. (So the third number is  $\frac{3}{2}$  and the fourth is  $\frac{1}{2}$ .)  
Find the tenth number in the sequence.

\_\_\_\_\_ 7

8. Two circles touch as shown.  
One circle has area 18 and  
the other has area 32.



Find the area of the smallest circle that contains both of the circles.

\_\_\_\_\_ 8

Grade Six (6) Division

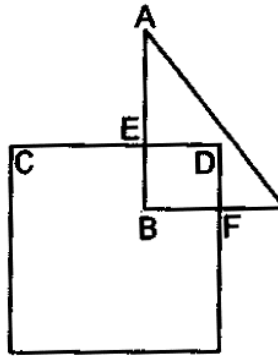
9. An 800 meter long train travelling at 20 meters per second went into a tunnel. The front of the train emerged from the tunnel 90 seconds after the rear of the train entered the tunnel. Find the length of the tunnel, in meters.

\_\_\_\_\_ 9

10. Alphy owes Beth 20 cents. In how many different ways can he pay off the debt using standard Canadian coins (1-cent and/or 5-cent and/or 10-cent coins) ?

\_\_\_\_\_ 10

11. A right-angle triangle and a square intersect at points E and F, as shown in the diagram. Also, line segment AB is perpendicular to line segment CD. How many right angles are there in the diagram ?



\_\_\_\_\_ 11

12. Alex had three boxes of marbles. In the first box, 30% of the marbles were blue. There were twice as many marbles in the second box as in the first box, and 25% were blue in the second box. There were twice as many marbles in the third box as in the second box, and 20% were blue in the third box. Alex lost the third box. What percentage of his blue marbles did he lose ?

\_\_\_\_\_ 12