

Review Session

March 11 2017

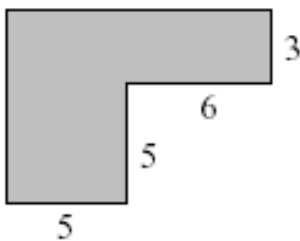
1. Calculate

$$\frac{(2011 + 4 + 30) \times (2011 - 11)}{1000}$$

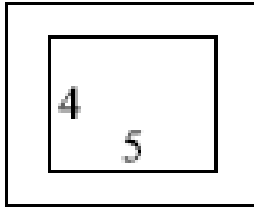
2. You toss a fair coin 3 times. What is the probability that you get 3 heads in a row? Express your answer as a common fraction.

3. Alan, Bob, and Guy have a total of 30 dollars between them. Alan has 5 dollars and Bob has four times as much money as Guy. How many dollars does Guy have?

4. All angles of the shape below are right angles. What is the length of the largest side of the shape?

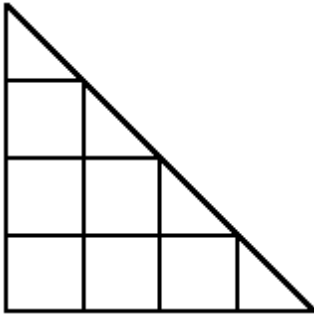


5. The sides of the smaller rectangle are 4 and 5. You obtain a larger rectangle by increasing each side of the smaller rectangle by 50%. What is the area of the larger rectangle?



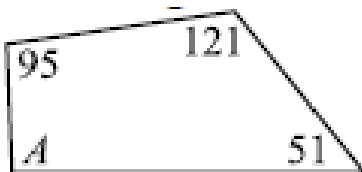
6. The number N is 55% of the number M and their sum is 310. What is the positive difference between M and N ?
7. What is the value of N ? $2011 \times 100 \times 9 = 20110 \times N$
8. Dan walked for 2 hours at a speed of 75 metres per minute. What was the distance (in km) that he walked?
9. Let $a \# b = axb + 2b$. What is the value of $(1 \# 2) \# 3$?

10. How many triangles are in the figure below?

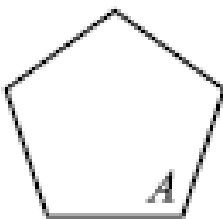


11. What is the value of one-half of one-fifth of 1000?

12. Three of the angles of a quadrilateral are 51 degrees, 121 degrees, and 95 degrees, as shown. What is the value, in degrees, of angle A ?

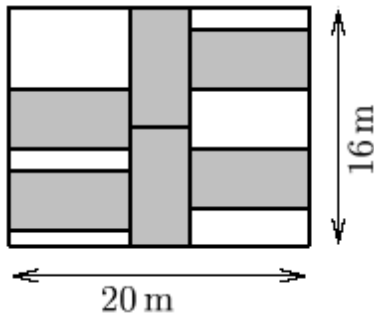


13. The figure below is a regular pentagon. What is the value, in degrees, of angle A ?

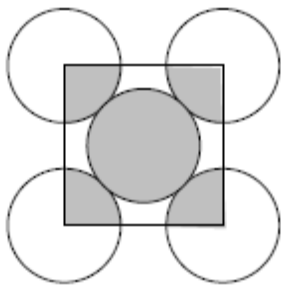


14. What is the value of N ? $4^4 \times 3^5 = 6^5 \times N$

15. The sides of the large rectangle are 20m and 16m. All 6 shaded rectangles have the same shape and area (in square metres). What is the total area, in square metres, of all the shaded regions?



16. All 5 circles have the same radius. The combined area of the shaded regions is 128π . What is the area of the square?

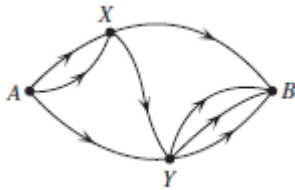


17. In the summation below $D=B+C$. What is the value of $A+B+C+D$?

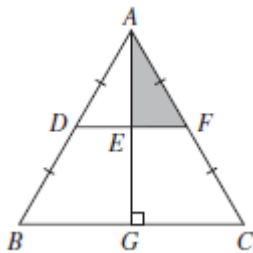
$$\begin{array}{r} 2BA \\ + C6D \\ \hline 8AD \end{array}$$

18. What is the smallest whole number N such that $5^N > 4000000$?

19. In how many ways can you walk from Point A to point B if you must walk along the directions marked by arrows?



20. $\triangle ABC$ is equilateral with side 4. $AD = DB$, and $\triangle ADF$ is equilateral. What is the difference between the area of $EF CG$ and $\triangle AEF$? Express your answer as \sqrt{N} where N is a positive whole numbers.



21. N , $N + K$, and $N + 2K$ are all integers and $K > 0$.
 $N(N + K)(N + 2K) = P$ where P is prime.
What is the value of N ?

22. You can use the digits 2, 0, 1, and 5 to form three digit numbers (but only the digit 1 is allowed to be used more than once). How many numbers can be formed? Examples for valid numbers: 111, 101, 251, 502.

23. A regular polygon has 120 sides. How many non congruent regular polygons can be drawn using corners of this polygon as their corners?