

Student Name: _____

1. Let $N = 2^4 \times 3 \times 7 \times \square$. If 360 is a factor of N , what's the minimum number that could be placed in the box?

Answer: _____

2. Let $a\#b = a^2 + ab - b$. For example, $4\#1 = 4^2 + 4 - 1 = 19$. What is $3\#(4\#5)$?

Answer: _____

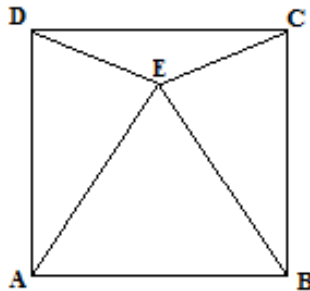
3. How many different 4-letter words can be made by rearranging the letters in “POOL” (including POOL)?

Answer: _____

4. Determine the number of positive integer solutions to the equation $3x + 5y = 80$.

Answer: _____

5. Point E is chosen inside square $ABCD$ such that $\triangle ABE$ is equilateral. Find $\angle EDC$.



Answer: _____

6. Sam wrote nine tests, each out of 100. His average on these nine tests is 72%. If his lowest mark is omitted, what is his highest possible resulting average?

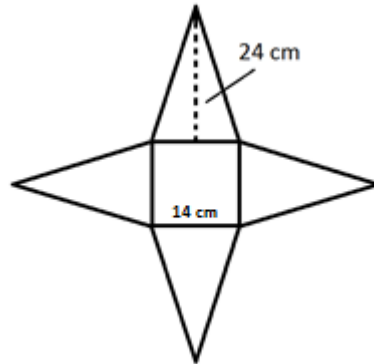
Answer: _____

7. One fair coin is tossed once. If it comes up heads, roll a fair 6-sided die. If it comes up tails, no die is rolled. What is the probability that the die rolls an odd number? (Note that if no die is rolled, then the die rolls a 0.)

Answer: _____

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8. The net (paper model) of a square based pyramid is shown below. What is **the perimeter of this net** if the square has a side length of 14cm, and all the isosceles triangles have a height of 24cm?



Net

Answer: _____