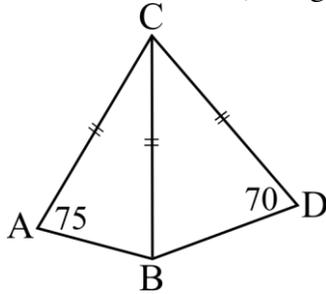


1. What is the nearest whole number to $1 + 2.1 + 3.21 + 4.18$? _____ 1

2. In the figure below $CA = CB = CD$, $\angle CAB = 75^\circ$, and $\angle CDB = 70^\circ$.
 What is the value (in degrees) of $\angle ACD$?



_____ ($^\circ$) 2

3. If N is 20% of M and M is 40% of L, then N is how many percent of L? _____ (%) 3

4. Find: $(2 - 1) + (5 - 3) + (8 - 5) + \dots + (29 - 19) =$ _____ 4

5. One side of a rectangle is 9. The perimeter of the rectangle is 34.
 What is the area of the rectangle? _____ 5

6. Reduce the following expression to a fraction in lowest terms:

$$\frac{7 + 6 + 5 + \frac{18}{2}}{\frac{6}{7}} =$$
 _____ 6

7. Alan's test scores were 61, 72, 82, and 93. What was his average score? _____ 7

8. N is the smallest number larger than 2012 whose digits are all even.
 What is the largest prime factor of N? _____ 8

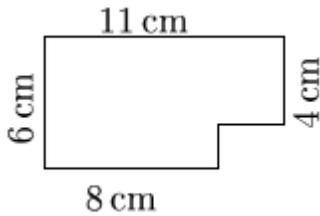
9. A regular polygon has 7 sides. How many diagonals does it have?
 (A diagonal is any interior line connecting two corners.) _____ 9

Grade Five (5) Division

10. Find the smallest whole number N such that $N \times 420$ is a perfect square.
(Perfect squares are numbers like $4 = 2^2$, $9 = 3^2$, $16 = 4^2$, etc...) _____ 10

11. Round 2012 minutes to the nearest whole number of days. _____(days) 11

12. All angles in the figure below are right angles.
What is the perimeter (in cm) of the 6-sided shape?



_____ (cm) 12

13. Adam needs a minimum of 87 cheesecake slices for his year-end party.
A large cake costs \$44 per cake, and can be cut into 16 slices. A small cake costs \$20 per cake, and can be cut into 6 slices. Adam wants to minimize his total cost. As long as total cost is minimized, he does not care if the total number of slices exceeds 87. What is his total cost in dollars? _____ (\$) 13

14. How many slices did Adam get in Question #13? _____ 14

15. How many integers between 100 and 1000 have digit sum larger than 25? _____ 15

16. 100 can be written as the sum of three primes.
What is the largest possible value of such a prime? _____ 16

17. Anne is twice her sister's age. Anne's mom is three times Anne's age.
The combined ages of Anne's mom and the two daughters is 54.
How old is the mom? _____ (yrs) 17

18. At the bargain shop each shirt is sold for \$5 plus tax.
Tax on an adult shirt is 12% and tax on a kid's shirt is only 5%.
If you have just enough money to buy 90 adult shirts (tax included),
how many kid's shirts can you buy for the same amount? _____ 18

Grade Five (5) Division

19. Thelma and Louise compete in target shooting. Each one fires a single bullet towards a target. Thelma has probability $\frac{1}{2}$ of hitting the target and Louise has probability $\frac{1}{3}$ of hitting. If both hit or if both miss then neither is a winner. What is the probability that Thelma wins? _____ 19

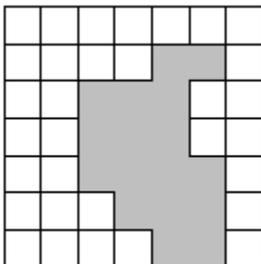
20. A new Prius car can travel 100 km on 3.7 litres of fuel. 7 years later it travels 100 km on 5.2 litres of fuel. How many km will it travel on 3.7 litres? Round your answer to the nearest km. _____(km)20

21. Twenty Lego cubes are arranged in a line (16 red, 3 white, and 1 black). The black cube is not at either end of the line. What is the probability that the cubes next to it on both sides are white? _____ 21

22. A box-shaped container with dimensions of $12\text{cm} \times 12\text{cm} \times 3\pi\text{ cm}$ is full of water. You pour it into a cylindrical container that has a base with radius 10cm. What is the height (in cm) of the water level in the cylindrical container? Express your answer as a decimal correct to 2 significant digits. _____(cm)22

23. Define $x \oplus y = x^2 + y^2$, and $x \# y = x + 2y$. Find: $(1\#2) \oplus (2\#1) =$ _____ 23

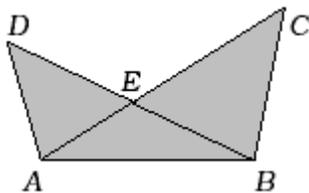
24. The figure below is a square consisting of smaller squares and a shaded region. What fraction of the big square is shaded?



_____ 24

25. The area of triangle ABC is $\frac{17}{14}$ of the area of triangle ABD , and $BE = ED$.

If the area of ABE is 105, what is the area of ABC ?



_____ 25

26. A room has 8 doors. Of the doors, 3 can only be used to enter the room, 3 can only be used to exit the room, and 2 can be used for entering or for exiting. Abe enters the room through one of the doors and exits through a different door. In how many possible ways could he do it? _____ 26