MNJHML Meet 3 Practice Worksheet

1. The number 15,240 is divisible by each of 1, 2, 3, 4, and 5. What is the smallest integer larger than 15,240 which is also divisible by 1, 2, 3, 4, and 5?

2. The greatest common factor of 748 and N is 34. If N is between 200 and 300, what is N?

3. A town has two historic clock towers with bells that ring every time they've measured an hour. Unfortunately neither are very good at keeping time - one rings every 72 minutes and the other rings every 54 minutes. If both clocks are set correctly at noon, what will the actual time be when the clock towers next ring together?

4. If $m = 12$ and $n = 28$, evaluate $\frac{LCM(m,n) \cdot GCF(m,n)}{m \cdot n}$

5. 21 of the 35 students in a school's math club are girls. What percent of the club members are boys?

6. Last year Logan's rectangular garden was 25 feet long by 12 feet wide. This year he increased its length by 10% and decreased its width by 10%. What is the area of his garden now, in square feet?

7. Keiko collects fidget spinners and decides to share some with her friends. She gives 20% of her collection to Vance, then gives 50% of her remaining spinners to Jill after which she has 6 fidget spinners remaining. How many did she give to Vance?

8. Mr. Burns has great hair, but he loses 20% of his hair follicles each year. What percent of his glorious mane will remain after 3 years? Round to the nearest percent.

9. Evaluate $\dfrac{2 \times 3^{-1}}{2 + 3^{-1}}$. Express your answer as a common fraction.

10. Evaluate $(m^3 + 9m^2 + 11m + 5)^{m^2 - 8m + 7}$ when $m = 7$.

11. Simplify, leaving only positive exponents: $\dfrac{\left(3x^2\right)^{-1}}{2x^{-3}}$

12. What is the value of n for which $2^n = \dfrac{1}{2^{12} - 2^{11} - 2^{10}}$?

13. Evaluate $\sqrt{8^2 - 4^2}$ Express your answer in simplest radical form.

14. Evaluate: $\frac{\sqrt{108}}{\sqrt{3}}$

15. $\sqrt{2}$ is 1.414 when rounded to the nearest thousandth. What is the value of $\sqrt{0.5}$ rounded to the nearest thousandth?

16. How many integers have a square root between $\frac{8}{3}$ and $\frac{15}{4}$?

17. Solve for x: $\frac{5}{1+\sqrt{x}} + 3 = \frac{8}{1+\sqrt{x}}$

18. Ralph can shovel the driveway in 45 minutes. Working together with Sheila's help it only takes 20 minutes. How many minutes would it take Sheila to clear the driveway by herself?

19. Every year on her birthday Retu gets to eat a larger portion of her birthday cake than the year before. When she turned 1 she ate $\frac{1}{10}$ of her cake; when she turned 2 she ate $\frac{2}{11}$ of the cake, at 3 she ate $\frac{3}{12}$ (i.e. $\frac{1}{4}$) of it, then $\frac{4}{13}$, and so on. Today is Retu's birthday and she's going to eat $\frac{2}{3}$ of her birthday cake. How old is she?

20. A cylinder's height is increased by 100% but its radius is decreased by 20%. What is the percent increase in the volume of the cylinder?

21. The rectangular wooden box shown is 8 inches wide, 10 inches long, and 8 inches high. If its sides and bottom are each 1 inch thick, how many square inches of surface must be painted to completely cover the box (inside and out, top and bottom)?
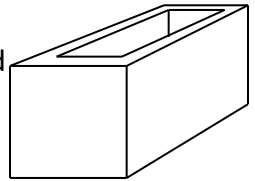
22. A spherical rock of diameter 12 cm is dropped into a cylindrical bucket partially filled with water, raising the water level by 0.5 cm. What is the inner radius of the bucket?

23. The figure at right is a sector of a circle with radius 8 cm, and has area 40π cm². If the sector were rolled into the shape of a cone so that the two radii coincide, would be the radius of the base of the cone?
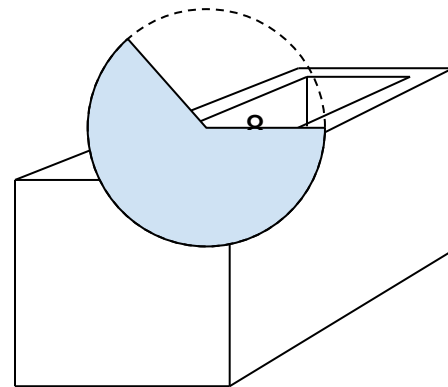
24. Jalal stops by Torus Donuts on his way home from soccer practice for a snack and buys two donuts of different varieties from among the 10 types they sell. How many different snacks are possible?

25. Maya rides her bike to the park which is two blocks north and three blocks east of her home. She doesn't always follow the same route but never rides farther than necessary. How many different routes can she take?
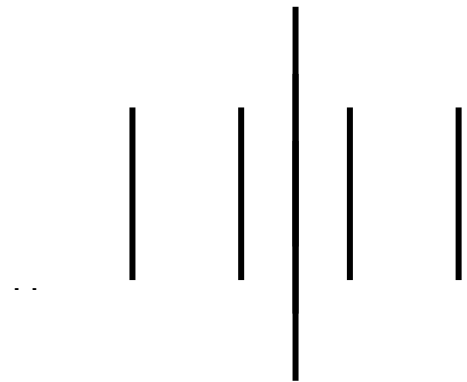
26. Triangles are formed in a regular octagon by joining any three of its eight vertices. In total, how many such triangles are there?

27. Eight identical books are to be arranged on three shelves. If each shelf must contain at least one book, in how many ways can the books be divided between the shelves?