

- _____ 1. If $2^5 \times 8^3 \times 16^2 = 4^m$, What is the value of m ?
- _____ 2. Find the solution to $x|x| = 2x + 1$ which has the smallest value.
- _____ 3. What is the 200th positive odd integer?
- _____ 4. The graphs of $y = x^2 - 7x + 7$ and $y = -3$ intersect at two points. What is the sum of the x -coordinates of these two points?
- _____ integers 5. How many integers k satisfy the equation $k^2 \leq 11$?
- _____ sq. units 6. What is the area enclosed by the graph of $|x| + |y| = 10$?
- _____ 7. If $3^{x+y} = 81$ and $81^{x-y} = 3$, then what is the value of the product xy ? Express your answer as a fraction in lowest terms.
- _____ 8. When $x^2 - 5x + 3c$ is divided by $x - 3$ the remainder is -12 . What is the value of c ?
- _____ 9. If $a + 2b + 3c = 30$ and $a + 3b + 5c = 8$, what is the value of $a + b + c$?
- _____ 10. If $\frac{1}{x} + \frac{1}{y} = \frac{1}{2}$ and $\frac{1}{x} - \frac{1}{y} = \frac{1}{4}$, what is the value of $\frac{1}{x^2} - \frac{1}{y^2}$? Express your answer as a common fraction.
- _____ 11. The first and seventh terms of a sequence are each 10. Starting with the third term, each term is the sum of the previous two terms. What is the fifth term?
- _____ tons 12. A fuel tanker weighs 2500 tons when 25% full and 3700 tons when 75% full. What is its weight in tons when empty?
- _____ units 13. The lateral (curved) surface area of a particular right cylinder ($2\pi rh$) in square units, is numerically equal to its volume ($\pi r^2 h$), in cubic units. What is the radius of the cylinder in units?
- _____ 14. Solve: $\log_6 x + \log_6 (x - 5) = 2$ for x .