

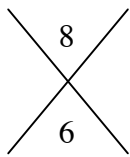
Part A: Answer problems 1-15 on the lines provided. (3 Points Each)

1. Simplify $x^a \cdot x^{-b}$

2. Simplify $-3x^{-2}$

3. $\left(\sum_{k=0}^n \binom{n}{k} x^{n-k} y^k \right)^0 =$

4. $(x + y)^2 =$

5. Resolve 

6. True or False: $(3x^2 - 2x + 1) - (8x^2 - 2x - 5) = -5x^2 + 6$

7. Factor completely: $5x^3 - 20x^2 - 15x$

8. The number 0.00000000000000156 written in scientific notation is

9. Divide $\frac{7x^2 - 14x + 56}{7x}$

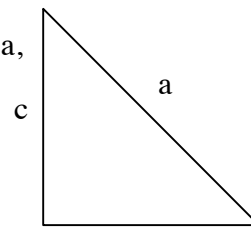
10. True or False: The FOIL method can be used to multiply $(x - 1)(4x^2 + 5x - 16)$.

11. Multiply $(x - 1)(4x^2 + 5x - 16)$

12. Solve for x: $(3x - 2)(x + 6) = 0$

13. Factor $25x^2 - 49y^2$

14. True or False: Given a right triangle with legs c, b, and hypotenuse a, then $c^2 + b^2 = a^2$.



15. Multiply $(x - 6)(x + 5) =$

Part B: Show all work and put your final answer on the lines provided. (5 pts. each)

16. Factor completely: $x^2 + 10x - 24$

17. Solve the equation: $-x(2x - 5)(x + 8) = 0$

18. Subtract the polynomials: $(6x^2 - 2x + 1) - (-x^2 + 7)$

19. Identify the GCF and factor $56x^2y^9 - 24x^6y^2 - 8xy^8$

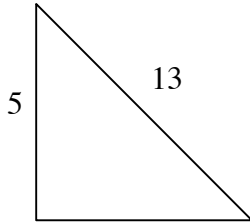
20. Multiply $(2x - 5)^2$

Part C: Show all work and put your final answer on the lines provided. (6 pts. each)

21. Divide $\frac{8x^3 - 10x}{2x - 1}$.

22. Simplify without negative exponents: $\left(\frac{2x^{-2}y^{-4}}{10x^{-4}y^5}\right)^{-2}$

23. Solve for x:



24. Solve the equation: $3x^{x+1} + 9x^2 - 30x = 0$

25. The earth has a radius of 6,380 km. The formula for the volume of a sphere is $V = \frac{4}{3}\pi r^3$, and the formula

for surface area of a sphere is $A = 4\pi r^2$. Find the volume and surface area of the earth and write the answer in scientific notation with two numbers after the decimal.