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**Math\_Questions\_0019**

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1. Find three factorizations of;

a)  $39x^6$

b)  $111a^3$

For problems 2 - 11, factor each expression completely.

2. a)  $x^2 + x - 20$

b)  $x^2 + 16 - 8x$

3. a)  $4y^2 - y^3 + 7y^4$

b)  $x^3 - 3x^2 + 6x - 18$

4. a)  $x^2 - 9x$

b)  $x^3 - 3x^2 + 6x - 18$

5. a)  $19x - 40 + 3x^2$

b)  $36x^2 - 1$

6. a)  $x^2 - x - 56$

b)  $6m^3 + 32m^2 - 24m$

7. a)  $25w^2 - 100$

b)  $144x + 54x^2 + 96$

8. a)  $4x^4 - 1280$

b)  $4x^2 - 36x + 81$

9. a)  $4x^2 + 29x - 24$

b)  $x^4 + 6x^3 - 2x - 12$

10. a)  $243 - 3x^4$

b)  $35x^2 - 44x - 7$

11. a)  $40t^3 - 28t^2 - 24t$

b)  $18m^2 - 75mn + 12n^2$

12. Solve:

a)  $x^2 - 2x - 15 = 0$

b)  $4x^2 - 5x = 6$

13. Solve:

a)  $x(x + 6) = 16$

b)  $x(x - 6) = 16$

14. a) Divide:  $\left(\frac{5}{6}\right) \div \left(\frac{-2}{3}\right)$

b) Multiply:  $(2x - 5)^2$

15. a) Multiply:  $(3x^2 + 4)^2$

b) Divide:  $\left(-\frac{7}{16}\right) \div \left(\frac{5}{8}\right)$

16. Factor:  $2y^6 - 4y^5 - 3y^3 + 6y^2$

17. Solve:  $y(y - 4) = 2y(y + 6)$

For problem 18 -19, factor completely:

18.  $3p^6 - 3p^5 - p^2 + p$

19.  $(a + 2)^2 - 2(a + 2) - 8$

20. Solve:  $3(x - 2) < 5(x + 4)$

21. Solve:  $8(x + 1) > 4(x - 6)$

For problem 22 - 25, please show a complete solution using **five steps** for solving problems.

22. Thirty more than the square of a number is eleven times the number. Find all such numbers.

23. The area of a square is 45 more than the perimeter. Find the length of a side.  
Solution:

24. The base of a triangle is 5 cm less than the height. The area is  $52 \text{ cm}^2$ . Find the height and the base.

25. Find the x-intercepts for the graph of the equation:  $y = 6x^2 + 11x - 10$

