NAME:_____

P.I. A.A.20: Factor algebraic expressions completely, including trinomials with a lead coefficient of one (after factoring a GCF)

Factor:

1. $9x^2 - 21x^5$

   [A] $3(3x^2 - 7x^5)$ [B] $x^2(9 - 21x^3)$

   [C] $3x^2(3 - 7x^3)$ [D] $3x(3x - 7x^4)$

2. $3x^3 - 6x^2 + 6x$

   [A] $x(3x^2 - 6x + 6)$ [B] $3x(x^2 - 2x + 2)$

   [C] $3(x^3 - 2x^2 + 2x)$ [D] $3x(x - 2)(x + 2)$

3. $35x^4 - 42x^7$

   [A] $x^4(35 - 42x^3)$ [B] $7x^4(5 - 6x^3)$

   [C] $7(5x^4 - 6x^7)$ [D] $7x^3(5x - 6x^6)$

4. $5x^3 - 15x^2 + 15x$

   [A] $x(5x^2 - 15x + 15)$

   [B] $5x(x^2 - 3x + 3)$ [C] $5(x^3 - 3x^2 + 3x)$

   [D] $5x(x - 3)(x + 3)$

5. $25x^5 - 15x^7$

   [A] $x^5(25 - 15x^2)$ [B] $5x^5(5 - 3x^2)$

   [C] $5(5x^5 - 3x^7)$ [D] $5x^4(5x - 3x^6)$

6. $35x^4 - 28x^7$

   [A] $x^4(35 - 28x^3)$ [B] $7x^4(5 - 4x^3)$

   [C] $7(5x^4 - 4x^7)$ [D] $7x^3(5x - 4x^6)$

7. $2x^3 + 6x^2 + 8x$

   [A] $x(2x^2 + 6x + 8)$ [B] $2x(x + 3)(x + 4)$

   [C] $2(x^3 + 3x^2 + 4x)$ [D] $2x(x^2 + 3x + 4)$

8. $40x^5 - 48x^8$

   [A] $8x^5(5 - 6x^3)$ [B] $8x^4(5x - 6x^7)$

   [C] $8(5x^5 - 6x^8)$ [D] $x^5(40 - 48x^3)$

9. $\frac{3}{7}x^7 - \frac{5}{7}x^6 + \frac{1}{7}x^5 - \frac{2}{7}x^3$

10. $\frac{1}{7}x^7 - \frac{1}{7}x^6 + \frac{6}{7}x^5 - \frac{4}{7}x^3$

11. Factor $15m^4 - 6m^2 + 9m$.

    [A] $m(15m^3 - 6m + 9)$

    [B] $3m(5m^3 - 2m + 3)$

    [C] $3(5m^4 - 2m^2 + 3m)$

    [D] $3m(5m^4 - 2m^2 + 3m)$

    [E] cannot be factored

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12. Jim has a data set of 4 numbers. The sum of the numbers is $36x^2 + 4$. If all 4 numbers are the same, what polynomial describes each number?

[1] C

[2] B

[3] B

[4] B

[5] B

[6] B

[7] D

[8] A

[9] $\frac{1}{7}x^3(3x^4 - 5x^3 + x^2 - 2)$

[10] $\frac{1}{7}x^3(x^4 - x^3 + 6x^2 - 4)$

[11] B

[12] $9x^2 + 1$