

Name: _____

Date: _____

Day 9 Homework- Factoring Completely

Directions: Factor the following expressions completely.

<p>1. $3x^2 + 3x - 6$ $3(x^2 + x - 2)$ $3(x+2)(x-1)$</p>	<p>2. $\frac{2x^2 - 8}{2}$ $2(x^2 - 4)$ $2(x-2)(x+2)$</p>	<p>3. $2x^2 + 24x + 64$ $2(x^2 + 12x + 32)$ $2(x+8)(x+4)$</p> <p style="text-align: right;">$\frac{32}{1 \ 32}$ $4 \ 8$</p>
<p>4. $6x^2 - 36x$ $6x(x-6)$</p>	<p>5. $6x^2 + 18x - 108$ $6(x^2 + 3x - 18)$ $6(x+6)(x-3)$</p> <p style="text-align: right;">$\frac{18}{1 \ 18}$ $2 \ 9$ $3 \ 6$</p>	<p>6. $5x^2 + 15x - 20$ $5(x^2 + 3x - 4)$ $5(x+4)(x-1)$</p>
<p>7. $3x^2 - 18x - 48$ $3(x^2 - 6x - 16)$ $3(x-8)(x+2)$</p> <p style="text-align: right;">$\frac{16}{1 \ 16}$ $2 \ 8$</p>	<p>8. $2x^2 - 200$ $2(x^2 - 100)$ $2(x+10)(x-10)$</p>	<p>9. $2x^2 - 18x + 40$ $2(x^2 - 9x + 20)$ $2(x-4)(x-5)$</p> <p style="text-align: right;">$\frac{20}{1 \ 20}$ $2 \ 10$ $4 \ 5$</p>

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Day 10- Factoring Review

- Methods of factoring:
1. Greatest Common Factor (GCF) –Always do first!
 2. Difference of Two Perfect Squares (DOTS)
 3. Trinomial ($x^2 + bx + c$) Coefficient: $a=1$
 4. Trinomial ($x^2 + bx + c$) Coefficient: $a>1$

1. If Allen factored using DOTS, which of the following could be a possible solution? Circle all the apply.

$$(x+3)(x-3)$$

$$(5x-6)(2x+4)$$

$$(x+9)(x+9)$$

$$(2x-5)(2x-5)$$

$$(8y-1)(8y+1)$$

Factor Completely:

1. $6x+27b$ $\begin{array}{r} 3 \\ \hline 3(3x+9b) \end{array}$	2. $12x^2-5x-2$ $\begin{array}{r} 12x^2 - 3x + 8x - 2 \\ 3x(4x-1) + 2(4x-1) \\ (3x+2)(4x-1) \end{array}$ $\begin{array}{r} 24 \\ \hline 1 \ 24 \\ 2 \ 12 \\ 4 \ 6 \\ 3 \ 8 \end{array}$
3. m^2-81 $(m-9)(m+9)$	4. $64b^2-9$ $(8b-3)(8b+3)$
5. $2x^2-8x+6$ $\begin{array}{r} 2x^2 - 2x - 6x + 6 \\ 2x(x-1) - 6(x-1) \\ (2x-6)(x-1) \end{array}$ $\begin{array}{r} 12 \\ \hline 1 \ 12 \\ 2 \ 6 \end{array}$	6. a^3-2a^2+a $\begin{array}{l} a(a^2-2a+1) \\ a(a-1)(a-1) \end{array}$
7. $x^2-13x-30$ $(x-3)(x-10)$ $\begin{array}{r} 30 \\ \hline 1 \ 30 \\ 2 \ 15 \\ 3 \ 10 \end{array}$	8. $49-y^2$ $(9-4)(9+4)$

<p>9. $3x^2 + 5x - 2$</p> $3x^2 + 3x + 2x - 2$ $3x(x+1) - 2(x+1)$ $(3x-2)(x+1)$	<p>10. $3a^4b^2 + 9a^2b^3 - 24ab^2$</p> $3ab^2(a^2 + 3ab - 8)$
<p>11. $m^2 + 5m + 4$</p> $(m+4)(m+1)$	<p>12. $5z^2 - 39z - 8$</p> $5z^2 + 12 - 40z - 8$ $z(5z+1) - 8(5z+1)$ $(z-8)(5z+1)$
<p>13. $64a^4b^6 - c^2d^2$</p> $(8a^2b^3 - cd)(8a^2b^3 + cd)$	<p>14. $x^4y^8 - 144a^6b^{10}$</p> $(x^2y^4 - 12a^3b^5)(x^2y^4 + 12a^3b^5)$
<p>15. $x^2 + x - 6$</p> $(x+3)(x-2)$	<p>16. $z^2 - 7z - 18$</p> $(z+2)(z-9)$ $\begin{array}{r} 18 \\ 1 \ 18 \\ 2 \ 9 \end{array}$
<p>17. $6x^2 - 7x - 3$</p> $\begin{array}{r} 6x^2 + 2x - 9x - 3 \\ \underline{2x} \quad \underline{-3} \\ 2x(3x+1) - 3(3x+1) \\ (2x-3)(3x+1) \end{array}$	<p>18. $\frac{12x^2yz - 18x^3y^2z^2}{6x^2yz \ 6x^2yz}$</p> $6x^2yz(2 - 3xyz)$
<p>19. $x^3 - 4x^2 + 4x$</p> $x(x^2 - 4x + 4)$ $x(x-2)(x-2)$	<p>20. $16x^2 - 28x - 8$</p> $4(4x^2 - 7x - 2)$ $4(4x^2 + 8x + 1x - 2)$ $4(4x(x-2) + 1(x-2))$ $4(x-2)(4x+1)$

<p>21. $4a^2b^2 - 9a^4$</p> $(2ab - 3a^2)(2ab + 3a^2)$	<p>22. $25x^2 - 49y^6$</p> $(5x - 7y^3)(5x + 7y^3)$
<p>23. $6x^3 + 46x^2 - 72x$ 108</p> $2x(3x^2 + 23x - 36)$ $2x(3x^2 - 4x + 27x - 36)$ $2x(x(3x-4) + 9(3x-4))$ $2x(x+9)(3x-4)$	<p>24. $25xy^2 + 30x^2y^4$</p> $5xy^2(5 + 6xy^2)$
<p>25. $169 - x^4$</p> $(13 - x^2)(13 + x^2)$	<p>26. $x^3 + 5x$</p> $x(x^2 + 5)$
<p>27. $4x^2 - 4x - 120$</p> $4(x^2 - x - 30)$ $4(x-6)(x+5)$	<p>28. $x^2 + 17x - 60$</p> $(x+3)(x-20)$
<p>29. $1 - x^2$</p> $(1-x)(1+x)$	<p>30. $5a^4 - 10a^3 - 15a^2$</p> $5a^2(a^2 - 2a - 3)$ $5a^2(a-3)(a+1)$
<p>31. $x^2 + 12x + 36$</p> $(x+6)(x+6)$	<p>32. $4x^2 - 36x$</p> $4x(x-9)$

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