

Name _____

Date _____

Factoring Trinomials: $x^2 + bx + c$

$$k^2 - k - 20 = (k)^2 + (4 + -5)k + (4)(-5) = (k + 4)(k - 5)$$

Factor, write prime if prime.

1. $x^2 + 7x + 12 =$

11. $51 - 20k + k^2 =$

2. $m^2 + 10m + 21 =$

12. $a^2 - 14ab + 24b^2 =$

3. $y^2 - 7y - 8 =$

13. $y^2 + 6y - 72 =$

4. $x^2 - 6x + 5 =$

14. $x^2 - 11xy + 60y^2 =$

Greatest Common Monomial Factor

Factor, write prime if prime.

$$12a^3b + 15ab^3 = 3ab(4a^2 + 5b^2)$$

1. $6x + 3 =$

8. $12x^2 - 9x + 15 =$

2. $24x^2 - 8x =$

9. $3n^3 - 12n^2 - 30n =$

3. $6x - 12 =$

10. $9m^2 - 4n + 12 =$

4. $2x^2 + 8x =$

11. $2x^3 - 3x^2 + 5x =$

5. $4x + 10 =$

12. $13m + 26m^2 - 39m^3 =$

6. $10x^2 + 35x =$

13. $17x^2 + 34x + 51 =$

7. $10x^2y - 15xy^2 =$

14. $18m^2n^4 - 12m^2n^3 + 24m^2n^2 =$

Difference of Squares

(1) $x^2 - 1$

(6) $4x^2 - 25$

(2) $x^2 - 9$

(5) $9x^2 - 1$

(3) $x^2 + 4$

(8) $16 - x^2$

(4) $x^2 - 25$

(9) $a^2 - x^2$

(5) $9y^2 - 16$

(10) $25m^2 - n^2$

Factoring Trinomials

(1) $2x^2 - 5x - 3$

(6) $4y^2 + 8y + 3$

(2) $3x^2 + 10x - 8$

(7) $3x^2 + 4x - 7$

(3) $2y^2 + 15y + 7$

(8) $2x^2 + 13x + 15$

(4) $7a^2 - 11a + 4$

(9) $9y^2 + 6y - 8$

(5) $5n^2 + 17n + 6$

(10) $6x^2 - 7x - 20$

Cubes

(1) $x^3 + 8$

(2) $64 - y^3$

(3) $d^6 + F^3$

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Factoring: Putting It All Together

$$5x^2 + 20x - 60 = 5(x^2 + 4x - 12) = 5(x + 6)(x - 2)$$

Factor completely, write prime if prime.

1. $2x^2 - 8 =$

9. $4x^2 + 16x + 16 =$

2. $2x^2 + 8x + 6 =$

10. $18x + 12x^2 + 2x^3 =$

3. $3n^2 + 9n - 30 =$

11. $2x - 2xy^2 =$

4. $6x^2 - 26x - 20 =$

12. $3t^3 - 27t =$

5. $2x^2 + 12x - 80 =$

13. $24a^2 - 30a + 9 =$

6. $5t^2 + 15t + 10 =$

14. $10x^2 + 15x - 10 =$

7. $8n^2 - 18 =$

15. $3x^2 - 42x + 147 =$

8. $14x^2 + 7x - 21 =$

16. $4x^4 - 4x^2 =$

17. $8x^3 - 1$

18. $5x^3 + 40$