

Name _____ Date _____

What Factored Into It?
Factoring Polynomials**Vocabulary**

State the given property.

1. Symmetric Property of Equality

Problem Set

Factor out the greatest common factor of each polynomial, if possible.

1. $x^2 + 9x$
 $x(x + 9)$

2. $m^2 - 4m$

3. $5x^2 + 20x - 15$

4. $24w^2 - 16$

5. $y^3 - 7y$

6. $2x^3 + 10x^2$

7. $3w + 10$

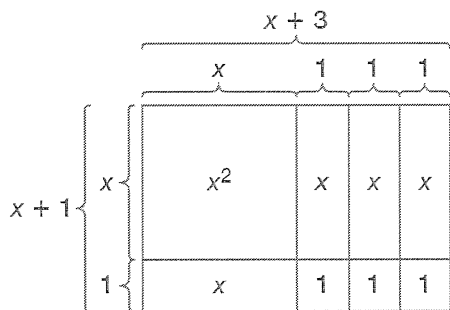
8. $20x^3 + 16x^2 + 8x$

9. $7m^3 - 21$

10. $15x^3 + 4$

Factor each trinomial using an area model.

11. $x^2 + 4x + 3$



$x^2 + 4x + 3 = (x + 1)(x + 3)$

12. $x^2 + 5x + 6$

12

13. $x^2 - x - 6$

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14. $x^2 - x - 12$

15. $x^2 + 7x + 10$

16. $x^2 + 3x - 4$

Factor each trinomial completely using multiplication tables. If possible, factor out the greatest common factor first.

17. $x^2 - 2x - 8$

·	x	2
x	x^2	$2x$
-4	$-4x$	-8

$$x^2 - 2x - 8 = (x - 4)(x + 2)$$

18. $y^2 + 13y + 42$

19. $m^2 + 6m - 7$

20. $x^2 - 9x + 18$

21. $4w^2 + 12w - 40$

22. $2t^3 - 14t^2 + 24t$

12

23. $3m^3 + 36m^2 + 60m$

24. $2x^2 - 8x - 42$

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Factor each polynomial using the trial and error method. If possible, factor out the greatest common factor first.

25. $x^2 + 11x + 10$

The factors of the constant term, 10, are:

$-1, -10$ $1, 10$

$-2, -5$ $2, 5$

$x^2 + 11x + 10 = (x + 1)(x + 10)$

26. $w^2 + 6w - 16$

27. $m^2 + 2m - 35$

28. $x^2 + 4x - 12$

29. $3n^2 - 27n + 60$

30. $2x^2 + 22x + 60$



Factor each polynomial.

31. $x^2 + 11x + 28 = \underline{(x + 4)(x + 7)}$

$x^2 - 11x + 28 = \underline{(x - 4)(x - 7)}$

$x^2 + 3x - 28 = \underline{(x - 4)(x + 7)}$

$x^2 - 3x + 28 = \underline{(x + 4)(x - 7)}$

32. $x^2 + 10x + 9 = \underline{\hspace{2cm}}$

$x^2 - 10x + 9 = \underline{\hspace{2cm}}$

$x^2 + 8x - 9 = \underline{\hspace{2cm}}$

$x^2 - 8x - 9 = \underline{\hspace{2cm}}$

33. $x^2 + 12x + 27 = \underline{\hspace{2cm}}$

$x^2 - 12x + 27 = \underline{\hspace{2cm}}$

$x^2 + 6x - 27 = \underline{\hspace{2cm}}$

$x^2 - 6x - 27 = \underline{\hspace{2cm}}$

34. $x^2 + 13x + 40 = \underline{\hspace{2cm}}$

$x^2 - 13x + 40 = \underline{\hspace{2cm}}$

$x^2 + 3x - 40 = \underline{\hspace{2cm}}$

$x^2 - 3x - 40 = \underline{\hspace{2cm}}$

35. $x^2 + 12x + 11 =$ _____
 $x^2 - 12x + 11 =$ _____
 $x^2 + 10x - 11 =$ _____
 $x^2 - 10x - 11 =$ _____

36. $x^2 + 13x + 36 =$ _____
 $x^2 - 13x + 36 =$ _____
 $x^2 + 5x - 36 =$ _____
 $x^2 - 5x - 36 =$ _____

Factor each polynomial completely. If possible, factor out the greatest common factor first.

37. $x^2 + 4x + 4$

38. $x^2 - 10x + 25$

·	x	2
x	x^2	$2x$
2	$2x$	4

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

39. $-32 - 12m - m^2$

40. $45 + 4w - w^2$

41. $5x^2 + 10x - 15$

42. $4x^2 + 32x + 64$