

43L5 WKST

Practice

Determine the missing factor.

1. $x^2 - 25 = (x - 5)(\square)$
2. $w^2 - 100 = (w + 10)(\square)$
3. $k^2 - 81 = (k - 9)(\square)$
4. $4a^2 - 121 = (2a - 11)(\square)$
5. $9 - 16x^2 = (3 + 4x)(\square)$
6. $x^4 - 36 = (x^2 + 6)(\square)$

Factor, if possible, using a difference of squares.

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|-----------------|-----------------|
| 7. $t^2 - 4$ | 8. $x^2 - 16$ |
| 9. $b^2 - 9$ | 10. $m^2 - 49$ |
| 11. $p^2 - 25$ | 12. $w^2 - 36$ |
| 13. $a^2 - 81$ | 14. $q^2 - 100$ |
| 15. $y^2 + 144$ | 16. $1 - c^2$ |
| 17. $64 - x^2$ | 18. $121 + w^2$ |
| 19. $s^2 - t^2$ | 20. $z^2 - x^2$ |
| 21. $b^2 - g^2$ | 22. $p^2 - q^2$ |

Factor.

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|--------------------|--------------------|
| 23. $4a^2 - 9b^2$ | 24. $16p^2 - 81$ |
| 25. $25a^2 - 49$ | 26. $9b^2 - 25$ |
| 27. $16 - x^2$ | 28. $25 - 36b^2$ |
| 29. $16 - 49x^2$ | 30. $81 - 4a^2$ |
| 31. $16x^2 - 1$ | 32. $144 - 121x^2$ |
| 33. $169 - 100t^2$ | 34. $225 - 49w^2$ |

Factor, if possible.

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|-----------------------------|------------------|
| 35. $6x^2 - 25$ | 36. $16y^2 - 49$ |
| 37. $9 - 4z^2$ | 38. $25a^2 - 36$ |
| 39. $x^2y^2 - 4$ | 40. $m^2 + 64$ |
| 41. $(a + b)^2 - (a - b)^2$ | |
| 42. $25 - 81p^2q^2$ | |

Remove the common factor, then factor using a difference of squares.

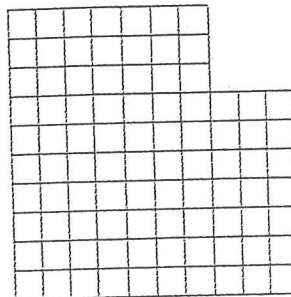
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|-----------------|-----------------|
| 43. $2m^2 - 50$ | 44. $9x^2 - 36$ |
|-----------------|-----------------|

45. $20r^2 - 45$
47. $10y^2 - 1000$
49. $50y^2 - 72$
51. $8y^2 - 8$
53. $27k^2 - 12$
55. $64 - x^2$
57. $12x^2 - 75y^2$

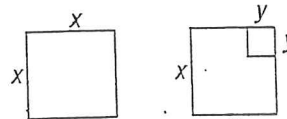
46. $8a^2 - 50$
48. $x^3 - x$
50. $x^3 - 9x$
52. $4p^2 - 16$
54. $16t^2 - 16$
56. $50 - 18x^2$
58. $50x^2 - 98y^2$

Problems and Applications

59. Cut a 10-by-10 square out of grid paper. Remove a 3-by-3 square from one corner.



- a) The area of the new figure is $10^2 - 3^2$. What is the area?
- b) Cut off one of the 7-by-3 rectangles and add it to the larger rectangle to make one rectangle. What are the dimensions of this rectangle?
- c) How do the dimensions of the rectangle compare with the result of factoring $10^2 - 3^2$?
- d) Repeat parts a) to c) for a square that is 6-by-6, with a 2-by-2 square removed. The area of the resulting figure is $6^2 - 2^2$.
- e) Repeat parts a) to c) for a starting square of side length x , with a square of side length y removed.



60. Work with a partner to fully factor the following expressions.

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| a) $x^4 - 1$ | b) $x^8 - 1$ | c) $x^4 - 625$ |
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