2M2H 3.4 Factoring Differences of Squares ANSWERS

1. How can you tell whether a binomial is a difference of squares?

Both terms are perfect squares and they are being subtracted.

2. How can you tell if a trinomial is a perfect square trinomial?

- 3 terms
- 1st and 3rd terms are perfect squares
- Middle term is double the square root of the 1st and 3rd terms

Factor each binomial completely, if possible. Don't forget to check for common factors.

3. $x^2 - 1$

$(x+1)(x-1)$

4. $36m^2 - 49$

$(6m+7)(6m-7)$

5. $q^2 + 49$

prime

6. $16x^2 + 25$

prime

7. $81v^2 - 225y^2$

$9(3v+5y)(3v-5y)$

8. $x^4 - 9$

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

Determine if the following are perfect square trinomials. If they are perfect square trinomials, factor them using the identity.

9. $x^2 + 8x + 16$

$(x+4)(x+4)$

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

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

11. $x^2 + 14x - 49$

Not Perfect Square Trinomial

Subtract in front of 49

12. $x^2 - x + 20$

Not Perfect Square Trinomial

20 is not a perfect square

13. $9x^2 + 24x + 25$

Not Perfect Square Trinomial

Middle Term is not

double square root of 1st and 3rd terms

14. $25x^2 + 90x + 81$

$(5x+9)(5x+9)$

Factor each polynomial completely. Don't forget to check for a common factor first. If the polynomial is prime, say so.

15. $y^2 - 121$

$(y+11)(y-11)$

16. $2v^2 - 32$

$2(v+4)(v-4)$

17. $w^2 + w - 6$

$(w-2)(w+3)$

18. $-8v + 12$

$-4(2v-3)$

19. $6x^2 - 13x + 5$

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

20. $-3k^2 - 24k + 60$

$-3(k+10)(k-2)$

21. $144 - 49t^2$

$(12+7t)(12-7t)$

22. $3x^2 + 75$

$3(x^2 + 25)$

23. $3x^2 + 5x - 28$

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

24. $v^2 - 8v + 12$

$(v-2)(v-6)$

25. $4x^2 + 19x - 30$

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

26. $2t^2 - 5t + 3$

$(2t-3)(t-1)$

27. $25a^2 - 121b^2$

$(5a+11b)(5a-11b)$

28. $-18p^2 + 32q^2$

$-2(3p+4q)(3p-4q)$

29. $x^4 - 81$

$(x^2 + 9)(x+3)(x-3)$

Solve each equation.

30. $\dfrac{x-8}{2x+5} = 4$

31. $-(x-16) - x = -5x$

$x = -4$

$x = -\dfrac{16}{3}$