MULTIPLY

1. $(x + 7)(x + 9)$

$x^2+16x+63$

2. $(x - 8)(x + 12)$

$x^2+12x-8x-96$

$x^2+4x-96$

3. $(4x - 1)(3x - 8)$

$12x^2-32x-3x+8$

$12x^2-35x+8$

4. $(x + 11)(x + 11)$

$x^2+11x+11x+121$

$x^2+22x+121$

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

$x^2-5x-5x+25$

$x^2-10x+25$

6. $(2x - 9)(2x + 9)$

$4x^2+18x-18x-81$

$4x^2-81$

Factor a Common Monomial

7. $15x - 27xy + 3y$

$3(5x-9xy+y)$

8. $28x^3y - 5x^2y + 12y$

$y(28x^3-5x^2+12)$

9. $24a^3b^2c + 6a^2b^2c^2 - 48ab^2c^3$

$6ab^2c(4a^2+ac-8c^2)$

Factor Using the Diamond Method

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

$(x+1)(x+2)$

2, 1, 2, 3

11. $x^2 + 14x + 24$

$(x+2)(x+12)$

24, 2, 12, 14

12. $x^2 - 5x - 14$

$(x-7)(x+2)$

-14, -7, 2, -5

13. $x^2 + 7x - 60$

$(x+12)(x-5)$

-60, 12, -5, 7

14. $-12x - 64 + x^2$

$x^2-12x-64$

$(x-16)(x+4)$

-64, -16, 4, -12

15. $x^2 - 12x + 36$

$(x-6)(x-6)$

$(x-6)^2$

36, -6, -6, -12

16. $x^2 - 225$

$(x+15)(x-15)$

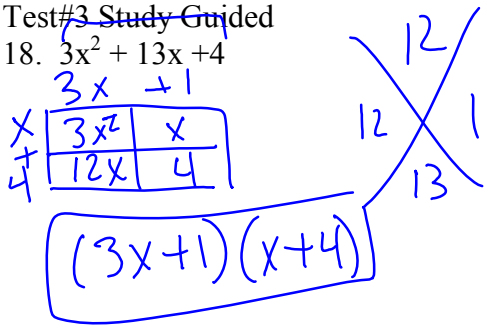
-225, 15, -15, 0

17. $x^2 - 169$

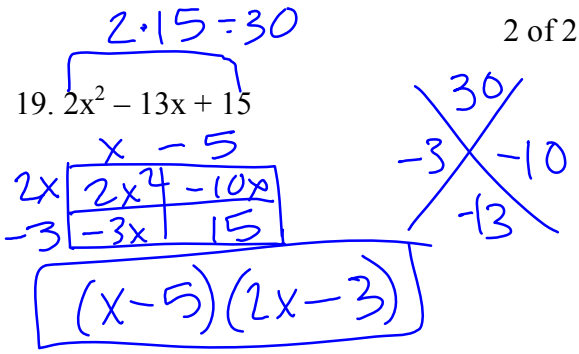
$(x+13)(x-13)$

169, 13, -13, 0

18. $3x^2 + 13x + 4$

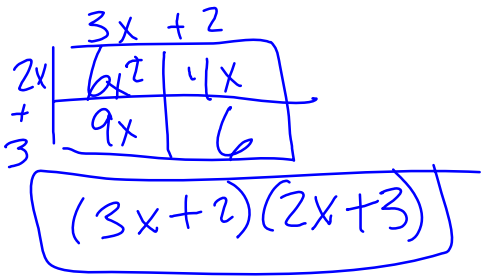


19. $2x^2 - 13x + 15$



20. $6x^2 + x - 2$

21. $6x^2 + 13x + 6$



Solve each equation.

22. $x^2 = 49$

$\sqrt{x^2} = \sqrt{49}$

$x = \pm 7$

23. $7x^2 = 21$

$\frac{7}{} \quad \frac{7}{}$

$\sqrt{x^2} = \sqrt{3}$

$x = \pm\sqrt{3}$

24. $5x^2 - 125 = 0$

$+125 \quad +125$

$5x^2 = 125$

$x^2 = 25$

$x = \pm 5$

25. $3x^2 - 11x = 0$

$x(3x-11)=0$

$x = 0$ $\quad 3x - 11 = 0$

$3x = 11$

$x = 11/3$

26. $30x^2 + 225x = 0$

$5x(6x+45)=0$

$5x=0$; $6x+45=0$

$x=0$ $\quad 6x = -45$

$x = -45/6 = -15/2$

27. $-9x^2 = 12x$

$-9x^2 - 12x = 0$

$-3x(3x+4)=0$

$-3x=0$; $3x+4=0$

$x=0$ $\quad 3x = -4$

$x = -4/3$

28. $x^2 + 14x + 24 = 0$

$(x+2)(x+12)=0$

$x+2=0$; $x+12=0$

$x=-2 \quad x=-12$

24, 2, 12, 14

29. $x^2 + 7x - 60 = 0$

$(x+12)(x-5)=0$

$x+12=0$; $x-5=0$

$x=-12 \quad x=5$

−60, 12, −5, 7

30. $-12x - 64 + x^2 = 0$

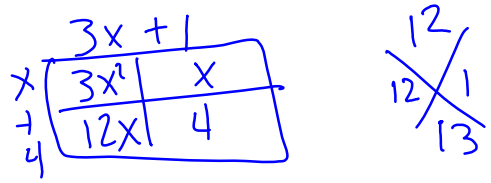
$x^2 - 12x - 64 = 0$

$(x+4)=0 \quad x-16=0$

$x=-4 \quad x=16$

−64, 4, −16, −12

31. $3x^2 + 13x + 4 = 0$



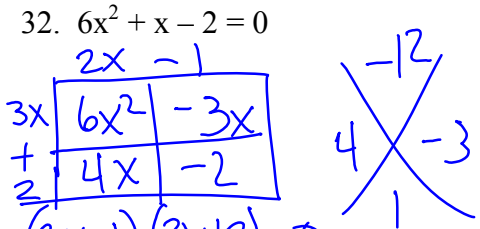
$(3x+1)(x+4)=0$

$3x+1=0 \quad x+4=0$

$3x=-1$

$x=-1/3 \quad x=-4$

32. $6x^2 + x - 2 = 0$



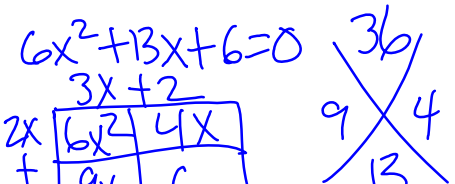
$2x-1=0$; $3x+2=0$

$2x=1 \quad 3x=-2$

$x=1/2 \quad x=-2/3$

33. $6x^2 + 13x = -6$

$6x^2+13x+6=0$



$3x+2=0 \quad 2x+3=0$

$3x=-2 \quad 2x=-3$

$x=-2/3 \quad x=-3/2$