

9.2 Factor Trinomials – Guess and Check *Answers*

PRACTICE

Factor the following if possible. Check your answer by multiplying!

1. $x^2 - 2x - 48$

$$(x-8)(x+6)$$

↓ CHECK YOUR ANSWER HERE! ↓

$$x^2 + 6x - 8x - 48$$

$$x^2 - 2x - 48 \quad \checkmark$$

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

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

↓ CHECK YOUR ANSWER HERE! ↓

$$x^2 + 2x + 12x + 24$$

$$x^2 + 14x + 24 \quad \checkmark$$

3. $m^3 - 10m^2 + 16m$

$$m(m^2 - 10m + 16)$$

$$m(m-8)(m-2)$$

↓ CHECK YOUR ANSWER HERE! ↓

$$m(m^2 - 2m - 8m + 16)$$

$$m(m^2 - 10m + 16)$$

$$m^3 - 10m^2 + 16m \quad \checkmark$$

4. $2x^2 - 7x - 49$

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

↓ CHECK YOUR ANSWER HERE! ↓

$$2x^2 - 14x + 7x - 49$$

$$2x^2 - 7x - 49 \quad \checkmark$$

5. $2x^2 - 15x + 7$

$$(2x-1)(x-7)$$

↓ CHECK YOUR ANSWER HERE! ↓

$$2x^2 - 14x - x + 7$$

$$2x^2 - 15x + 7 \quad \checkmark$$

6. $t^2 - 49$

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

↓ CHECK YOUR ANSWER HERE! ↓

$$t^2 + 7t - 7t - 49$$

$$t^2 - 49 \quad \checkmark$$

7. $2p^2 - 8p - 10$

$$(2p+2)(p-5)$$

↓ CHECK YOUR ANSWER HERE! ↓

$$2p^2 - 10p + 2p - 10$$

$$2p^2 - 8p - 10 \quad \checkmark$$

8. $9x^2 - 64$

Diff of squares!

$$(3x-8)(3x+8)$$

↓ CHECK YOUR ANSWER HERE! ↓

$$9x^2 + 24x - 24x - 64$$

$$9x^2 - 64 \quad \checkmark$$

9. $h^2 + 3h - 54$

$$(h+9)(h-6)$$

↓ CHECK YOUR ANSWER HERE! ↓

$$h^2 - 6h + 9h - 54$$

$$h^2 + 3h - 54 \quad \checkmark$$

Factor the following if possible. You do not have to show work to check your answer, but you should still be able to tell if it is close to being correct.

10. $3x^2 + 18x + 15$

$$3(x^2 + 6x + 5)$$

$$3(x+5)(x+1)$$

11. $x^3 - 36x$

$$x(x^2 - 36)$$

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

12. $w^2 - 1$

$$(w-1)(w+1)$$

Factor the following if possible. You do not have to show work to check your answer, but you should still be able to tell if it is close to being correct.

13. $x^2 - 16x$

$$x(x-16)$$

14. $3x^2 + 5x + 2$

$$(3x+2)(x+1)$$

15. $4x^2 + 6x - 28$

$$2(2x^2 + 3x - 14)$$

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

Solve the following by factoring.

16. $x^2 - 4x - 12 = 0$

$$(x+2)(x-6) = 0$$

$$x+2=0 \quad x-6=0$$

$$x=-2 \quad x=6$$

17. $0 = 2x^2 + 6x - 80$

$$0 = 2(x^2 + 3x - 40)$$

$$0 = 2(x+8)(x-5)$$

$$x+8=0 \quad x-5=0$$

$$x=-8 \quad x=5$$

18. $2a^2 - 8a = 0$

$$2a(a-4) = 0$$

$$2a=0 \quad a-4=0$$

$$a=0 \quad a=4$$

19. $x^3 + 2x^2 + x = 0$

$$x(x^2 + 2x + 1) = 0$$

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

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

$$x=0 \quad x=-1$$

20. $25g^2 - 16 = 0$

$$(5g-4)(5g+4) = 0$$

$$5g-4=0 \quad 5g+4=0$$

$$5g=4 \quad 5g=-4$$

$$g=\frac{4}{5} \quad g=-\frac{4}{5}$$

21. $y^2 + 4y = 21$

$$y^2 + 4y - 21 = 0$$

$$(y+7)(y-3) = 0$$

$$y+7=0 \quad y-3=0$$

$$y=-7 \quad y=3$$

22. $2x^2 = x + 6$

$$2x^2 - x - 6 = 0$$

$$(2x+3)(x-2) = 0$$

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

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

$$x=-\frac{3}{2} \quad x=2$$

23. $42 = c^2 + c$

$$0 = c^2 + c - 42$$

$$0 = (c+7)(c-6)$$

$$c+7=0 \quad c-6=0$$

$$c=-7 \quad c=6$$

Solve the following by factoring.

24. $x^2 + 12x + 20 = 3x$

$$x^2 + 9x + 20 = 0$$

$$(x+4)(x+5) = 0$$

$$x+4=0 \quad x+5=0$$

$$x = -4 \quad x = -5$$

25. $1 = 2h + 3h^2$

$$0 = 3h^2 + 2h - 1$$

$$0 = (3h-1)(h+1)$$

$$3h-1=0 \quad h+1=0$$

$$3h=1$$

$$h = \frac{1}{3}$$

$$h = -1$$

Answer the following.

26. Simplify

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

$$3x^2 - 2x + 1 - 3x^2 + x - 5$$

$$-x - 4$$

27. Multiply $(x+5)^2$

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

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

$$x^2 + 10x + 25$$

28. Solve $\frac{2}{x} + 5 = 7$

$$\frac{2}{x} = 2$$

$$2 = 2x$$

$$1 = x$$

29. Write the equation of the linear function for the situation below.

Bob has 47 dollars and spends 3 dollars every 2 weeks.

$$y = 47 - \frac{3}{2}x$$

30. Write the equation of the exponential function for the situation.

Bob has 47 dollars and doubles his money every 3 weeks.

$$y = 47(2)^{\frac{w}{3}}$$

31. If $f(x) = x^2 - x$, find $2f(3) + 1$

$$2(3^2 - 3) + 1$$

$$2(6) + 1$$

$$12 + 1$$

$$13$$