

# Factoring Polynomials Homework

October-29-15  
10:37 AM

Name \_\_\_\_\_

### 5.6 Factoring Trinomials: $x^2 + bx + c$

MATHPOWER™ Nine, pp. 195–197

To factor a trinomial in the form  $x^2 + bx + c$ , use the following steps.

- List all the factors of  $c$ .
- From the list, select the pair of factors whose sum is  $b$ .

Factor  $x^2 + 5x + 6$ . Find  $m$  and  $n$  so that  $m + n = 5$  and  $mn = 6$ .

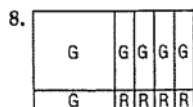
Pair of Factors	Sum of Pair of Factors
1, 6	7
-1, -6	-7
2, 3	5
-2, -3	-5

Therefore,  $m = 2$  and  $n = 3$ .  
 $x^2 + 5x + 6 = (x + 2)(x + 3)$

Complete the table.

	Product	Pair of Factors	Sum of Pair of Factors
1.	15	3, 5	8
2.	-12	4, -3	1
3.	-6	-3, 2	-1
4.	4	-2, -2	-4
5.	5	1, 5	6
6.	-6	-2, 3	1
7.	14	-2, -7	-9

Express the area of each rectangle in expanded and factored form. Let G represent green tiles and R represent red tiles.

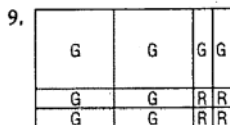


$$\frac{x^2 + 5x + 4}{(x+4)(x+1)}$$

Factor.

$$\frac{10. a^2 - 5a + 6}{(a-3)(a-2)}$$

$$\frac{12. c^2 - 2c - 24}{(c-6)(c+4)}$$



$$\frac{2x^2 + 6x + 4}{(2x+2)(x+2)}$$

$$\frac{11. s^2 - 4s - 12}{(s-6)(s+2)}$$

$$\frac{13. y^2 + y - 42}{(y+7)(y-6)}$$

$$14. q^2 + 16q + 64$$

$$(q+8)(q+8)$$

$$15. m^2 - 8m + 15$$

$$(m-3)(m-5)$$

Remove the GCF and factor fully.

$$16. 2x^2 + 12x + 10$$

$$2(x+5)(x+1)$$

$$18. 4n^2 - 16n - 20$$

$$4(n-5)(n+1)$$

$$17. 5z^2 - 10z - 40$$

$$5(z-4)(z+2)$$

$$19. 3y^2 - 12y + 12$$

$$3(y-2)(y-2)$$

Factor, if possible.

$$20. x^2 + 8x + 15$$

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

$$22. t^2 - 4t + 32$$

$$\text{not possible}$$

$$21. y^2 + 12y + 30$$

$$\text{not possible}$$

$$23. z^2 + z + 56$$

$$\text{not possible}$$

Fill in the missing terms.

$$24. x^2 + \square x + 30 = (x + \square)(x + \square)$$

$$25. x^2 - \square x + 30 = (x - \square)(x - \square)$$

$$26. x^2 + 6x + \square = (x + \square)(x + \square)$$

$$27. x^2 - 6x + \square = (x - \square)(x - \square)$$

28. A field has an area of  $(x^2 + x - 6)$  square metres. State expressions for its length and width.

$$l = x + 3 \quad w = x - 2$$