

Section 2.3 Factor Quadratic Expressions of the Form $ax^2 + bx + c$

1. Factor each trinomial, using algebra tiles, if possible. If not possible, write *not factorable*.
 - a) $x^2 + 4x + 3$
 - b) $b^2 + 6b + 8$
 - c) $p^2 + 6p + 5$
 - d) $v^2 + 3v + 5$
 - e) $w^2 + 8w + 12$
2. Factor each trinomial, if possible. If not possible, write *not factorable*.
 - a) $y^2 - 13y + 30$
 - b) $k^2 + 11k + 24$
 - c) $c^2 + 4c + 7$
 - d) $m^2 + 2m - 48$
 - e) $a^2 - 7a + 12$
3. Factor each trinomial, if possible. If not possible, write *not factorable*. Look for common factors first.
 - a) $2y^2 - 18y - 20$
 - b) $3m^2 + 18m + 15$
 - c) $2q^2 + 4q + 16$
 - d) $5n^2 + 10n - 15$
 - e) $3d^2 - 3d - 36$
4.
 - a) Create a trinomial that can be factored into two binomials.
 - b) Factor the trinomial.
 - c) Illustrate how the polynomial is related to its factors using algebra tiles. Draw a diagram of your model.
5.
 - a) Create a trinomial that cannot be factored.
 - b) Use algebra tiles or algebraic reasoning to explain why it cannot be factored.
6. Factor each trinomial, using algebra tiles, if possible. If not possible, write *not factorable*.
 - a) $2x^2 + 7x + 3$
 - b) $3k^2 + 10k + 3$
 - c) $2y^2 + 7y + 5$
 - d) $4j^2 + j + 3$
 - e) $4b^2 + 8b + 3$
7. Factor each trinomial, if possible. If not possible, write *not factorable*.
 - a) $3e^2 + 10e + 8$
 - b) $2g^2 + 9g + 9$
 - c) $2k^2 - 9k - 5$
 - d) $9m^2 - 9m + 9$
 - e) $12p^2 - 23p - 2$
8. Factor each trinomial, if possible. If not possible, write *not factorable*. Look for common factors first.
 - a) $2w^2 + 10w + 12$
 - b) $4w^2 + 20w + 24$
 - c) $3x^2 + 3x - 6$
 - d) $2m^2 + 4m - 30$
 - e) $6a^2 - 6a - 12$
9.
 - a) Create a trinomial that can be factored into 2 binomials for which $a \neq 1$, where a is the coefficient of the quadratic term.
 - b) Explain your method using words and diagrams.
10. Which do you think are more common: trinomials that can be factored or trinomials that cannot be factored? Justify your answer with mathematical reasoning.