

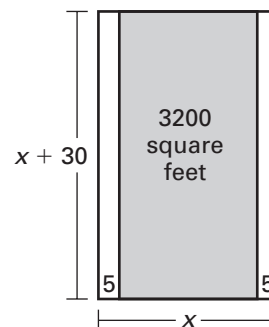
LESSON
8.5
Interdisciplinary Application
For use with the lesson "Factor $x^2 + bx + c$ "
Marching Band

Music Marching bands of today resemble military bands of old. Military bands originated in Europe around the 1700s. These bands led troops in marching to help promote a patriotic spirit among the troops and civilians.

Marching bands usually perform while on the move, although they can perform standing still. Marching bands may feature drum majors, a color guard, baton twirlers, or a dance line. Marching bands often play to a precision drill. It takes musicianship, teamwork, and plenty of practice to maintain correct marching ranks, while still producing a well-balanced sound.

Your marching band is asked to perform in a local parade. The band is allotted 3200 square feet in the parade and must stay at least 5 feet from the curb. The width of the street is x feet and the length of the space allotted for the band is $x + 30$ feet.

Your director decides that rows will be 4 feet apart and each row will contain 8 band members.



1. Use the diagram to write a polynomial expression representing the area the band is allotted.
2. Simplify the expression in Exercise 1.
3. Find x by setting the simplified expression in Exercise 2 equal to the square footage allotted for the band.
4. Find the number of rows your band will take up. (*Hint*: Row 1 starts at 0 feet, row 2 starts at 4 feet, and so on.)
5. Can all 200 members be in the parade? If not, how many more square feet are needed?