4-2

Practice

Quadratic Equations

Solve each equation by completing the square.

1. $x^2 - 5x - \frac{11}{4} = 0$

2. $-4x^2 - 11x = 7$

Find the discriminant of each equation and describe the nature of the roots of the equation. Then solve the equation by using the Quadratic Formula.

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

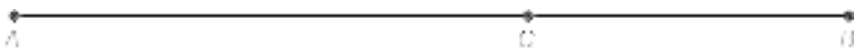
4. $4x^2 - 4x - 15 = 0$

5. $9x^2 - 12x + 4 = 0$

6. $3x^2 + 2x + 5 = 0$

Solve each equation.

7. $2x^2 + 5x - 12 = 0$

8. $5x^2 - 14x + 11 = 0$

9. ***Architecture*** The ancient Greek mathematicians thought that the most pleasing geometric forms, such as the ratio of the height to the width of a doorway, were created using the *golden section*. However, they were surprised to learn that the golden section is not a rational number. One way of expressing the golden section is by using a line segment. In the line segment shown, $\frac{AB}{AC} = \frac{AC}{CB}$. If $AC = 1$ unit, find the ratio $\frac{AB}{AC}$.