## 1 Quadratic equations

Write down the quadratic formula to solve the following equation:  $ax^2 + bx + c = 0$ .

Can we use a part of this formula to find how many solutions a quadratic equation has? Explain.

**Exercise 1.1.** Solve for x, including any complex solutions.

1. 
$$3x^2 = 27$$

2. 
$$(x+2)^2 = -7$$

3. 
$$(2x+3)(x+4) = 1$$

4. 
$$2x^2 - 7x = 0$$

## 2 Radical equations

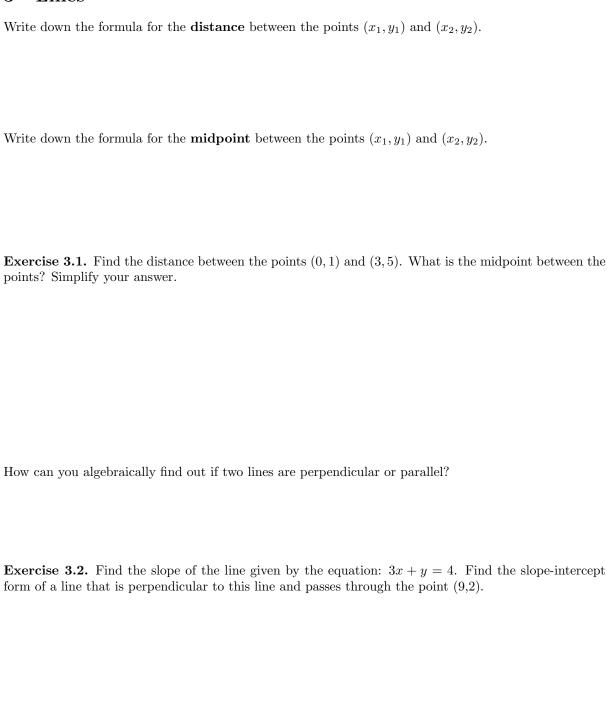
**Exercise 2.1.** Solve for x.

1. 
$$\sqrt{3x+18} = x$$

$$2. \ \sqrt{x+2} + \sqrt{3x+7} = 1$$

(Can we just square each side or do we have to do something before?)

## 3 Lines



## 4 Circles

What is the difference between the general form and the standard form of the equation of a circle?

Exercise 4.1. Write the standard form of the equation of the circle with the given center and radius.

- 1. Center (0,0), r=3
- 2. Center (0,2), r=5

**Exercise 4.2.** Convert the general form of a circle's equation to standard form and vice versa. Find the center and radius of the circle.

1. 
$$(x+3)^2 + (y-1)^2 = 4$$

$$2. \ x^2 + y^2 + 8x - 2y - 8 = 0$$