



## Using the Quadratic Formula Exam Practice

Q1. Solve the equation  $x^2 + 3x - 15 = 0$ , giving your answers to 1 decimal place. (3 marks)

Q2. Solve the equation  $2x^2 - 11x + 24 = 0$ , giving your answers to 1 decimal place.

marks)

(3

Q3. Solve the equation  $3a^2 - 2a - 32 = 0$ , giving your answers to 2 decimal places.

(3 marks)

Q4. Solve the equation  $14c^2 - 160 = 0$ , giving your answers to 2 decimal places.

(3 marks)

Q5. Solve the following equation correct to 3 decimal places:

$$6x^2 = 4 - 13x$$

(3 marks)

Q6. Solve the following equation correct to 1 decimal place:

$$y^2 - 24y = 3y^2 - 38$$

(3 marks)

Q7. Solve the equation below, giving your answers in the form  $a \pm \sqrt{b}$  where  $a$  and  $b$  are whole numbers:

$$a^2 = -6a + 52$$

(3 marks)

Q8. Show that the equation  $2x = 23 - \frac{44}{x}$  can be written in the form:

a)  $2x^2 - 23x + 44 = 0$

(2 marks)

b) Hence solve the equation:  $2x = 23 - \frac{44}{x}$ , giving your answers to 1 significant figure.

(2 marks)

Q9. Solve the equation  $10x^3 + 5x^2 + 4x = 0$ , giving your answers to 1 decimal place.

### Applied Mixed Practice Problems

Q10. The sum of a number and its reciprocal is  $\frac{31}{4}$ .

a) Show that  $4x^2 - 31x + 4 = 0$ .

(2 marks)

b) Find the possible values of  $x$  correct to 2 significant figures

(3 marks)

Q11. A mini - computer can sort a list of  $n$  numbers in order of size in  $T$  milliseconds according to the following rule:

$$T = 0.000380n^2 + 0.00145n - 6.15$$

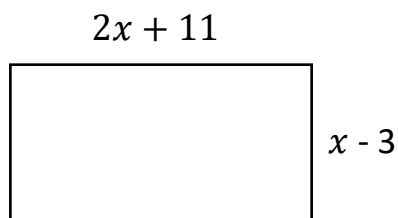
a) How long, in seconds, does it take the computer to sort 10,000 numbers?

(2 marks)

b) How many numbers can the computer sort in 1 second?

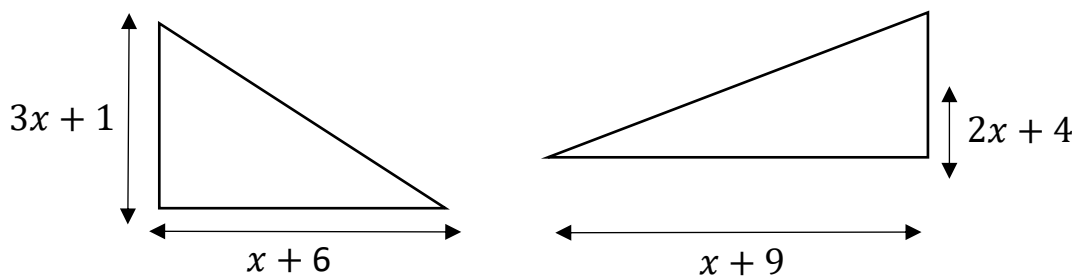
(2 marks)

Q12. The area of the rectangle below is  $88 \text{ cm}^2$ . By finding and solving a suitable quadratic equation, work out the value of  $x$  to 1 decimal place.



(4 marks)

Q13. The area of the two right-angled triangles below are the same. Find this area, correct to 2 decimal places.



(5 marks)



Q14. Using algebra, find the points of intersection of the line  $y = 7x - 3$  and the curve  $y = 2x^2 - 5x + 11$  correct to 1 decimal place.

(5 marks)