

Algebra 1 – Exam Question Examples

2013

Question 2

(25 marks)

- (a) Find the set of all real values of x for which $2x^2 + x - 15 = 0$.

- (b) Solve the simultaneous equations;

$$x + y + z = 16$$

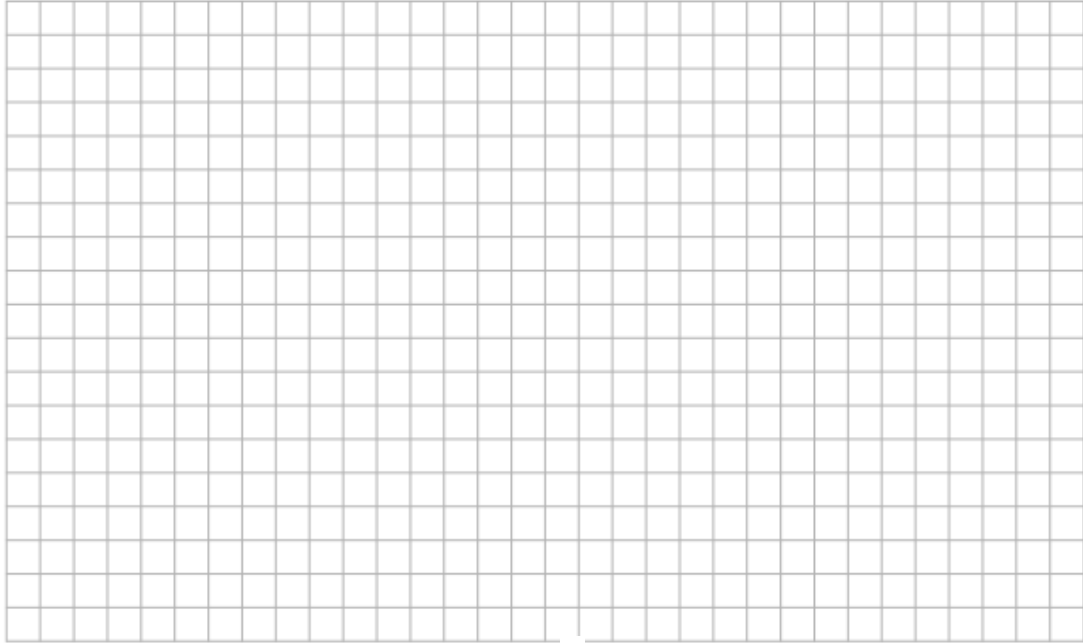
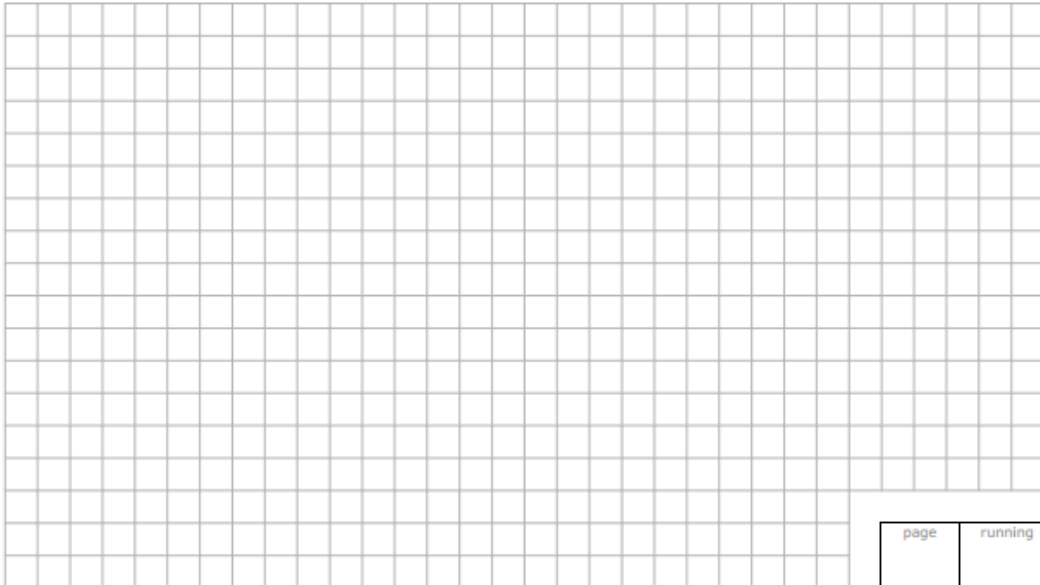
$$\frac{5}{2}x + y + 10z = 40$$

$$2x + \frac{1}{2}y + 4z = 21.$$

Question 1**(25 marks)****(a)** Solve the simultaneous equations:

$$a^2 - ab + b^2 = 3$$

$$a + 2b + 1 = 0$$

**(b)** Find the set of all real values of x for which $\frac{2x-5}{x-3} = \frac{5}{2}$.

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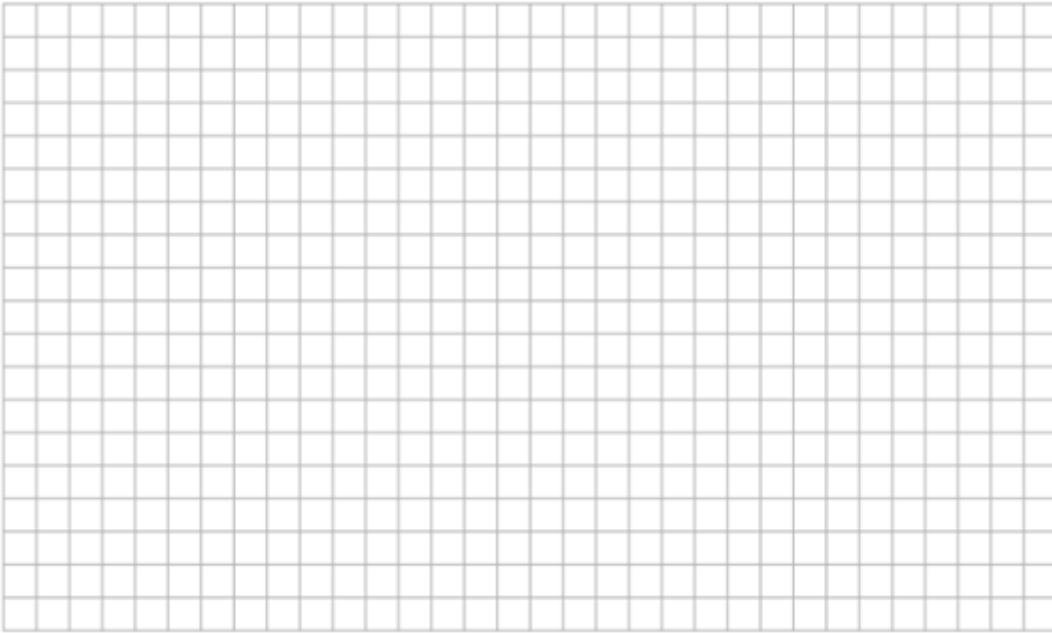
- (c) Solve the equation $x^2 - 2\sqrt{3}x - 9 = 0$, giving your answers in the form $a\sqrt{3}$, where $a \in \mathbb{Q}$.

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2. (a) Solve the simultaneous equations

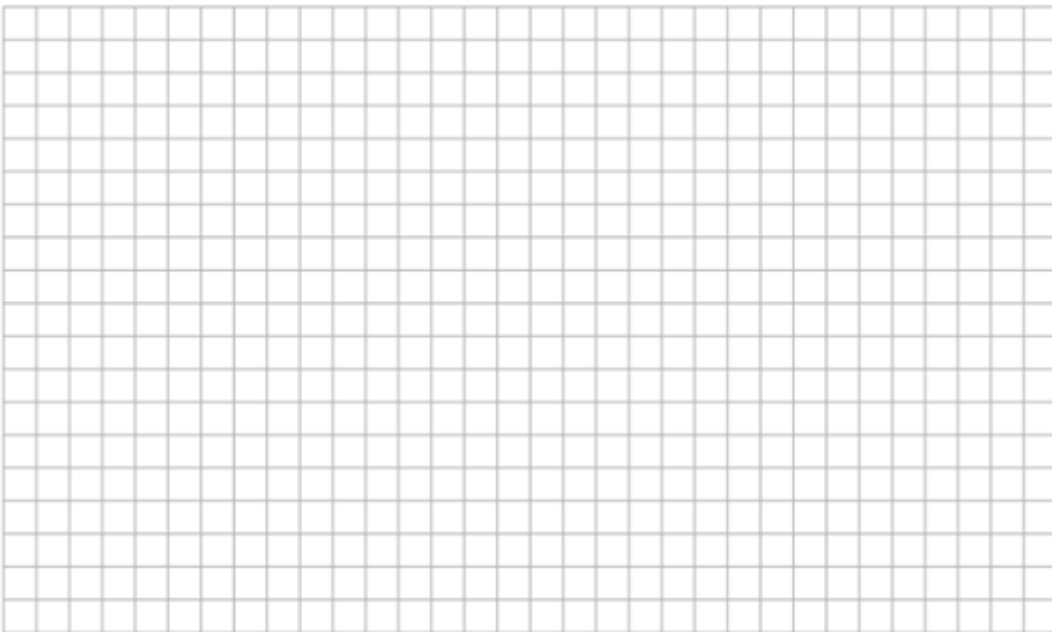
$$\begin{aligned} 2x + 3y &= 0 \\ x + y + z &= 0 \\ 3x + 2y - 4z &= 9. \end{aligned}$$

1. (a) $x^2 - 6x + t = (x + k)^2$, where t and k are constants.
Find the value of k and the value of t .



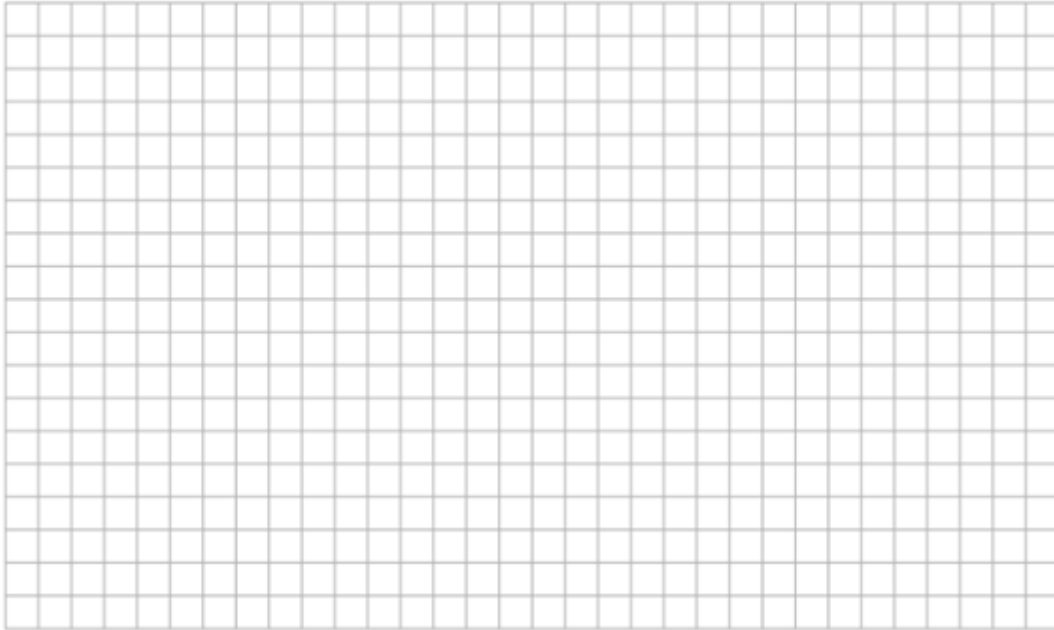
2009

1. (a) Find the value of $\frac{x}{y}$ when $\frac{2x+3y}{x+6y} = \frac{4}{5}$.



(b) Let $f(x) = x^2 - 7x + 12$.

(i) Show that if $f(x+1) \neq 0$, then $\frac{f(x)}{f(x+1)}$ simplifies to $\frac{x-4}{x-2}$.



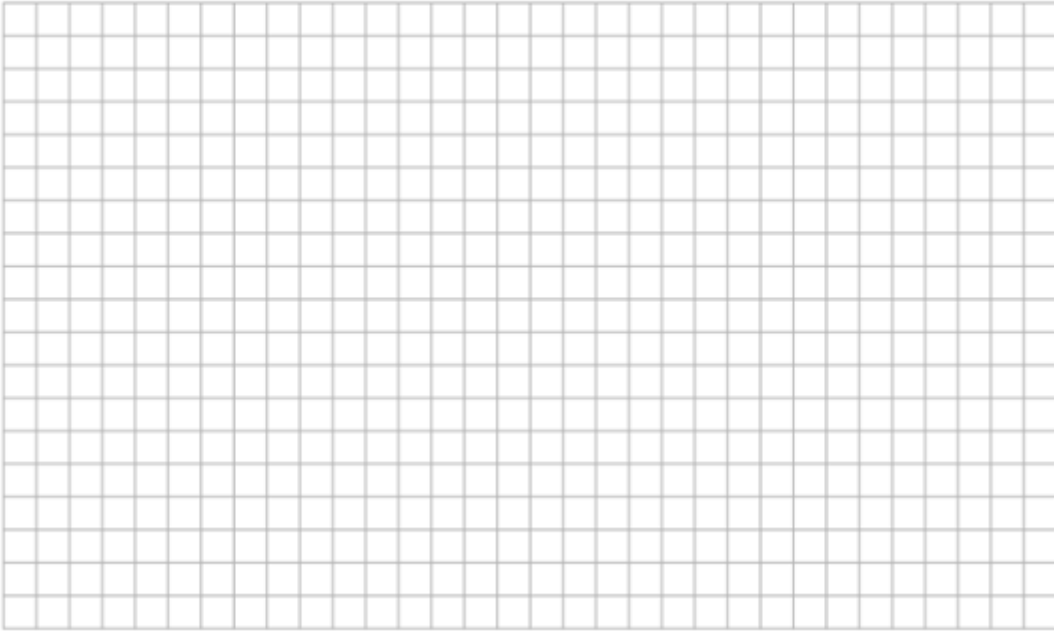
2. (a) Solve the simultaneous equations

$$x - y + 8 = 0$$

$$x^2 + xy + 8 = 0.$$

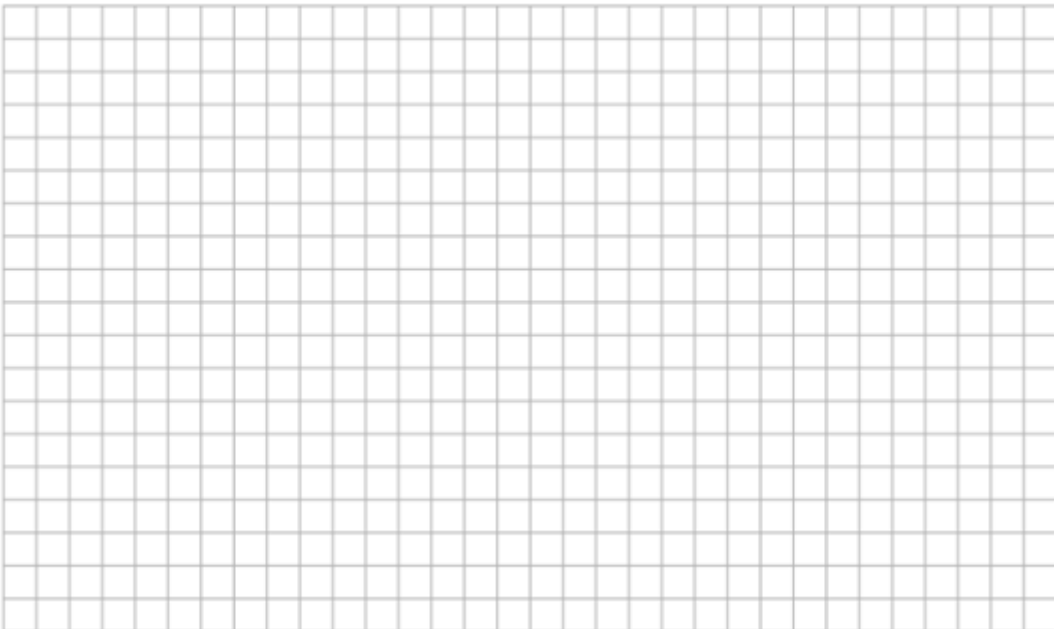


1. (a) Simplify fully $\frac{x^2 + 4}{x^2 - 4} - \frac{x}{x + 2}$.



2007

1. (a) Simplify $\frac{x^2 - xy}{x^2 - y^2}$.



2. (a) Solve the simultaneous equations

$$x + y + z = 2$$

$$2x + y + z = 3$$

$$x - 2y + 2z = 15.$$

