# Linear equations and inequalities practice test 1

Name: _____ Date: _____

16 questions | 40 marks | 55 minutes

Solve and interpret linear equations, simultaneous equations and inequalities.

No calculator needed.

**1.** Solve $3x + 5 = 17$. [2 marks]

**2.** Solve $5x - 4 = 2x + 11$. [2 marks]

**3.** Solve $2(3x - 1) = 4x + 10$. [2 marks]

**4.** Solve $\frac{x+2}{3} = 4$. [2 marks]

**5.** Solve $x + y = 10$ and $x - y = 4$. [2 marks]

**6.** Solve $y = 2x$ and $y = x + 3$. [2 marks]

**7.** Solve $2x + y = -1$ and $x + 2y = 7$. [3 marks]

**8.** Classify the solution set of $2x - y = 5$ and $4x - 2y = 10$. [2 marks]

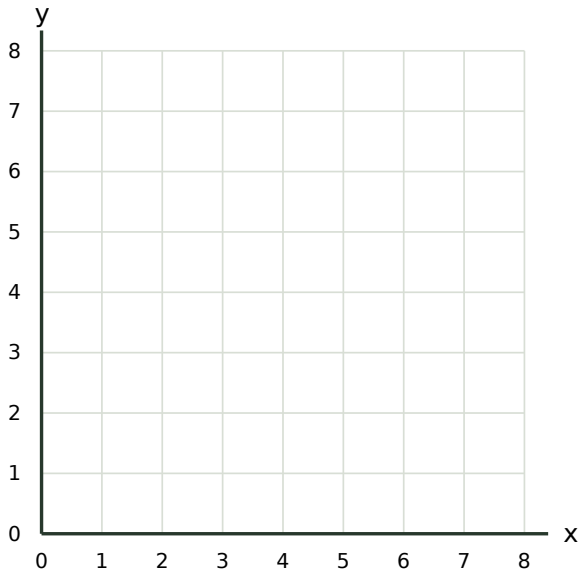
**9.** Explain why $y = 3x + 1$ and $y = 3x + 4$ have no simultaneous solution. [2 marks]

**10.** Solve $4x - 3 \leq 13$. [2 marks]

**11.** Solve $-2x + 7 > 15$. [3 marks]

**12.** Solve $3(x - 1) \geq x + 5$. [2 marks]

**13.** On the grid, draw $y = x + 1$ and $y = 7 - x$. State their intersection. [3 marks]




Draw both lines and mark their intersection

**14.** For $y < 2x + 3$, state the boundary style and determine whether $(0, 0)$ is allowed. [3 marks]

**15.** Consider $x \geq 0$, $y \geq 0$, $x + y \leq 5$. [4 marks]

**(a)** List the vertices of the feasible region. [2 marks]

**(b)** Is $(3, 3)$ feasible? Explain. [2 marks]

**16.** A factory makes packages A and B. Each A uses 3 red parts and 2 blue parts; each B uses 1 red part and 3 blue parts. Exact totals are 20 red and 18 blue parts. Find the package counts and check them. [4 marks]