

There are many INEQUALITIES in life...

When things are not equal there are inequalities.

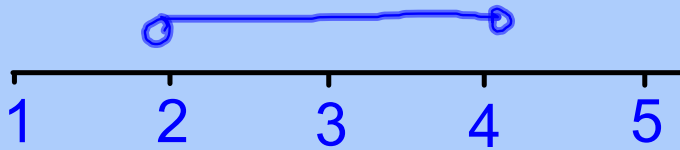
The 4 signs we use in maths are:

$a < b$	a is less than b
$a \leq b$	a is less than or equal to b
$a > b$	a is greater than b
$a \geq b$	a is greater than or equal to b

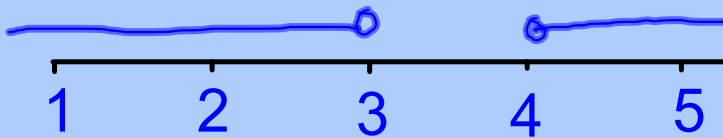
game



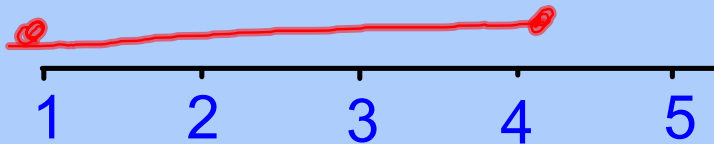
Inequalities on a number line



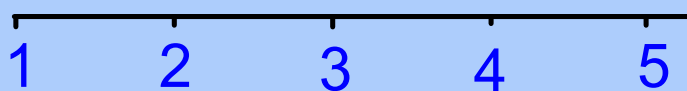
$$2 < x < 4$$



$$x < 3, x > 4$$



$$1 \leq x \leq 4$$



$$x \leq 2, x > 4$$

- this means $x =$ the no.
- this means $x \neq$ the number but is close to it.

You can represent inequalities on a number line:

$$3 < x < 7$$

You may have to write down all the integers (whole numbers) that satisfy an inequality:

$$4 < x < 9 \quad 5, 6, 7, 8$$

$$6 \leq x < 10 \quad 6, 7, 8, 9$$

$$x^2 > 25 \quad 6, 7, \dots \dots \dots$$
$$-6, -7, \dots \dots \dots$$

2. Represent the following inequalities on a number line:

1) $4 < x < 7$

2) $-3 < x < 5$

3) $7 < x, x < 5$

4) $x < -2, x > 3$

5) $x^2 < 49$

6) $-x < 5$

$$x > -5$$

$$1, 2, 12$$
$$-3$$

You may have to solve an inequality:
(treat it like an equation, but beware of
negatives)

$$2x > 6$$

$$x > \frac{6}{2}$$

$$x > 3$$

$$\underline{\underline{x > 3}}$$

$$2x = 6$$

$$x = \frac{6}{2}$$

$$x = 3$$

$$3(x+1) < 12$$

$$3x + 3 < 12$$

$$3x < 9$$

$$\underline{\underline{x < 3}}$$

$$9, 63$$

$$3 - x < 7$$

$$-3$$

$$-x < 4$$

$$x > -4$$

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$$-2 < 3x + 1 \leq 4$$

$$-2 = 3x + 1$$

$$-3 = 3x$$

$$-1 = x$$

$$\underline{\underline{-1 < x \leq 1}}$$

$$3x + 1 = 4$$

$$3x = 3$$

$$x = 1$$

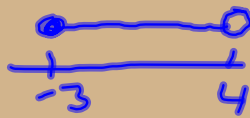
Write down all the integers that satisfy:

$$-6 < x \leq -2$$

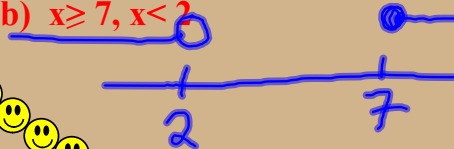
$-5, -4, -3, -2,$

Show the solutions on a number line:

a) $-3 \leq x < 4$



b) $x \geq 7, x < 2$



Solve these inequalities:

a) $4x > 12$

$$x > 3$$

b) $3x < 21$

$$x < 7$$

c) $5x \geq 45$

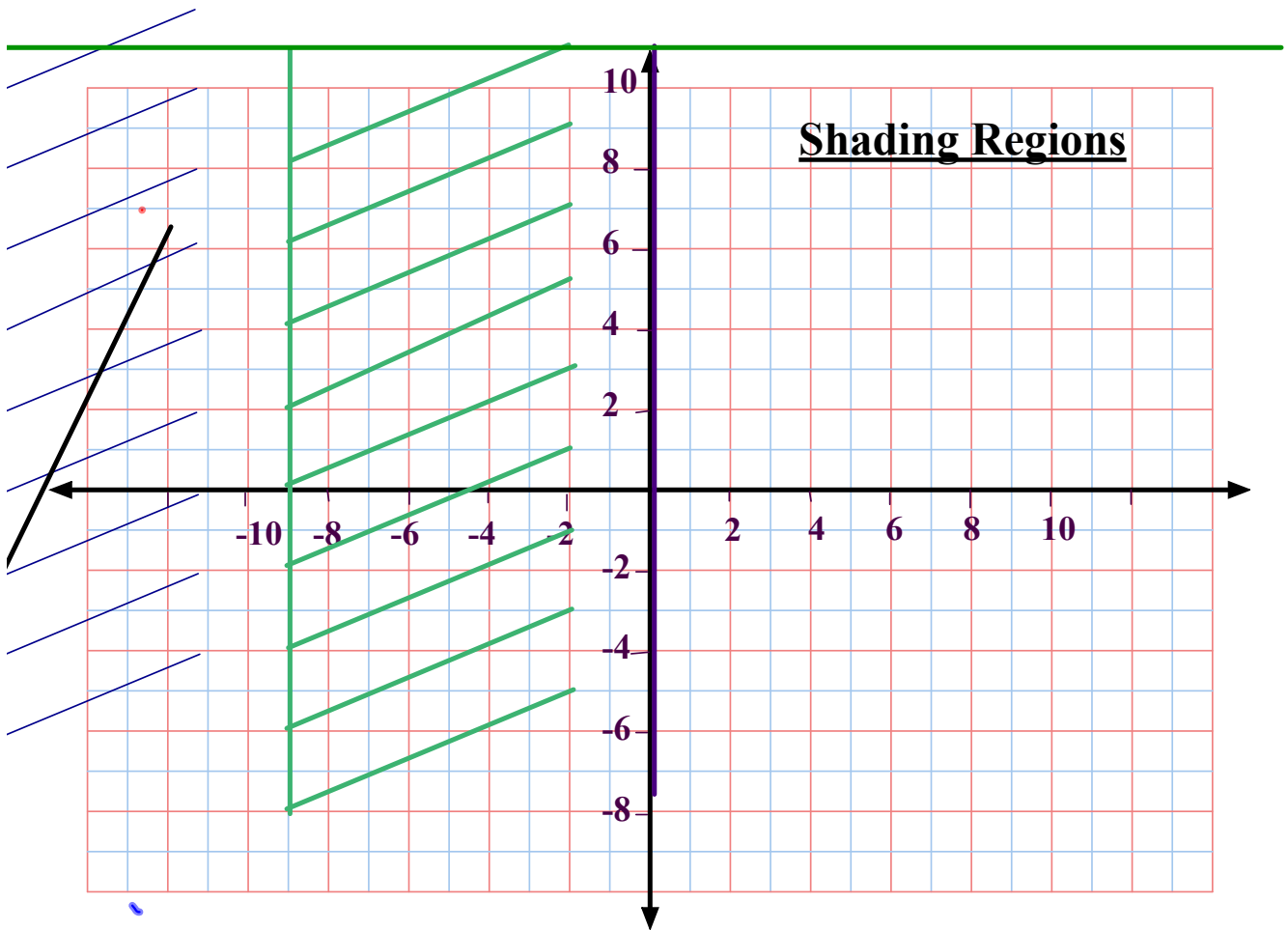
$$x \geq 9$$

d) $6x \leq 3$

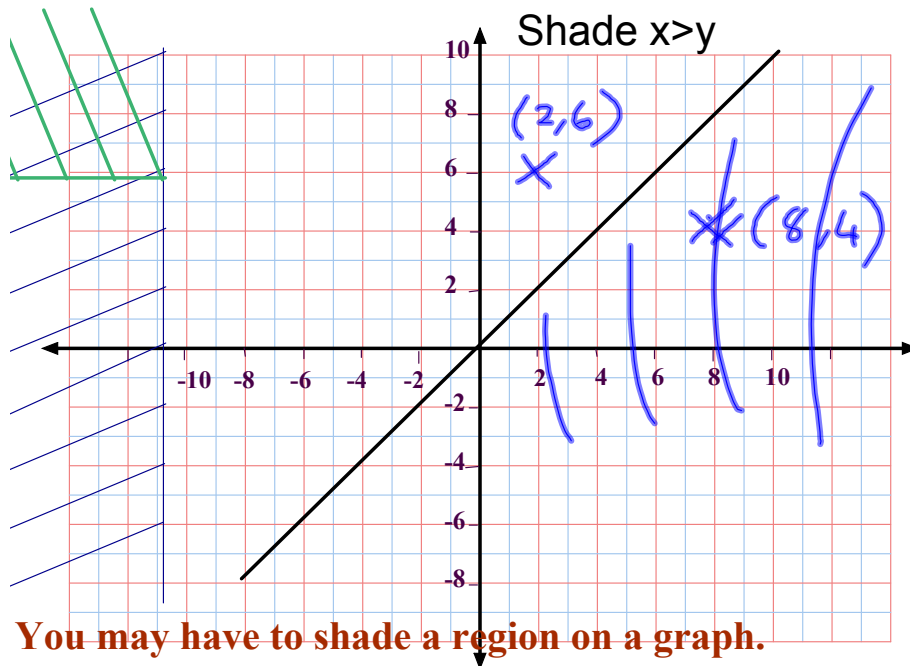
$$x \leq \frac{1}{2}$$

matching

P196 D9, D11, D13



You may have to shade a region on a sloping graph, eg
 $y < 2x + 4$



1. $x > 3$
2. $y < 2$
3. $x > 4$ and $y < -1$
4. $2x + 1 > 11$

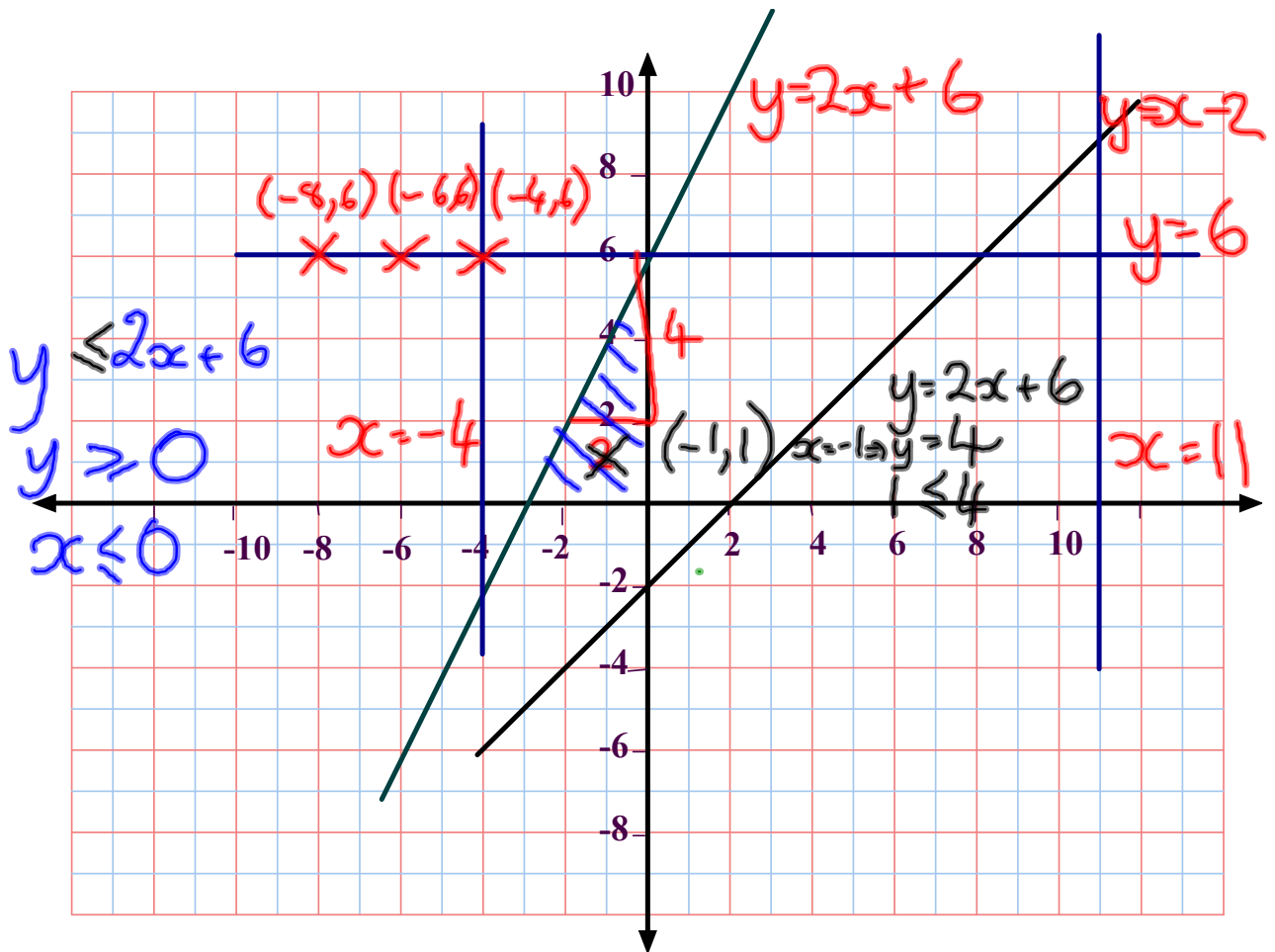
Shade the region for which

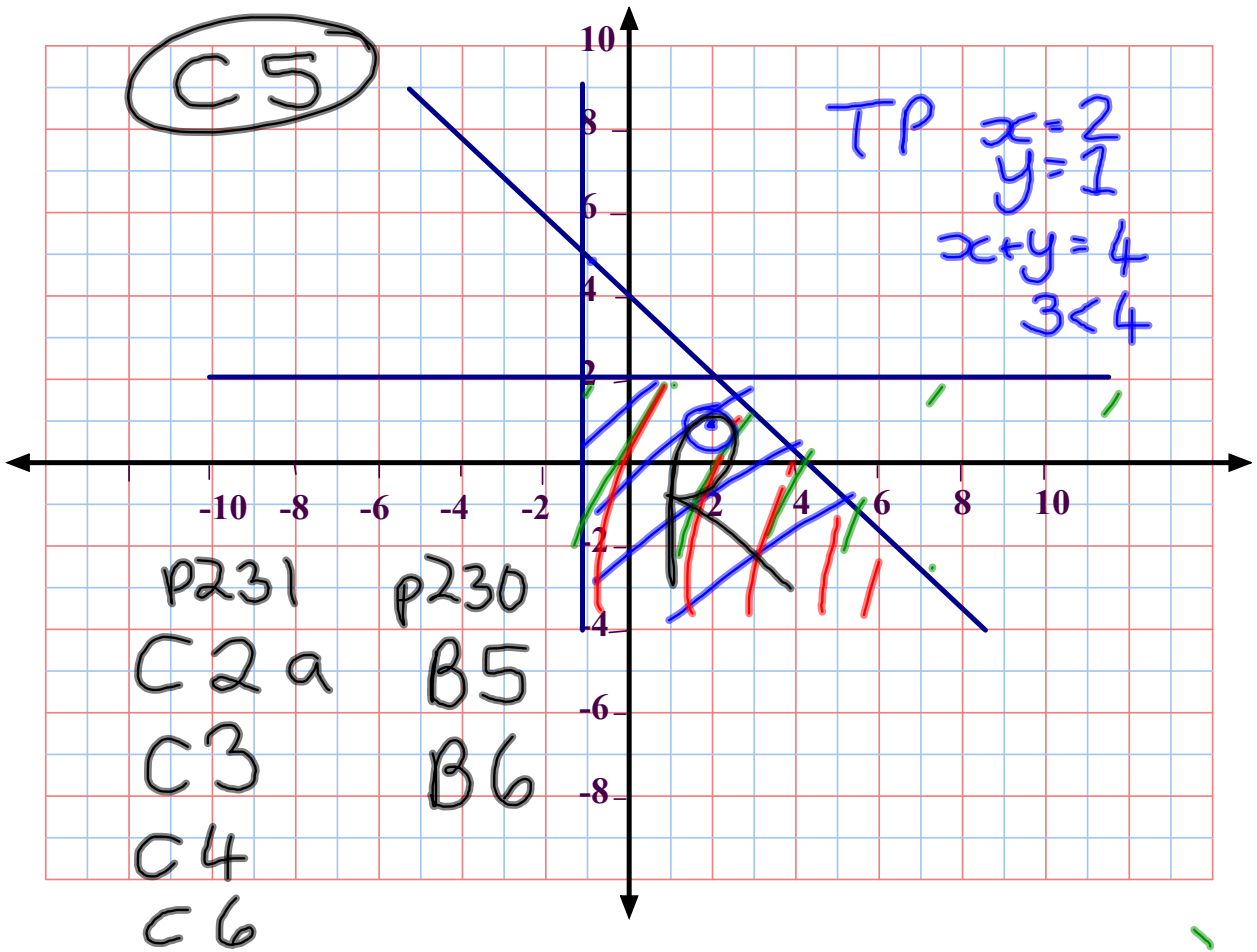
$$y > 6$$

and $y \leq x$

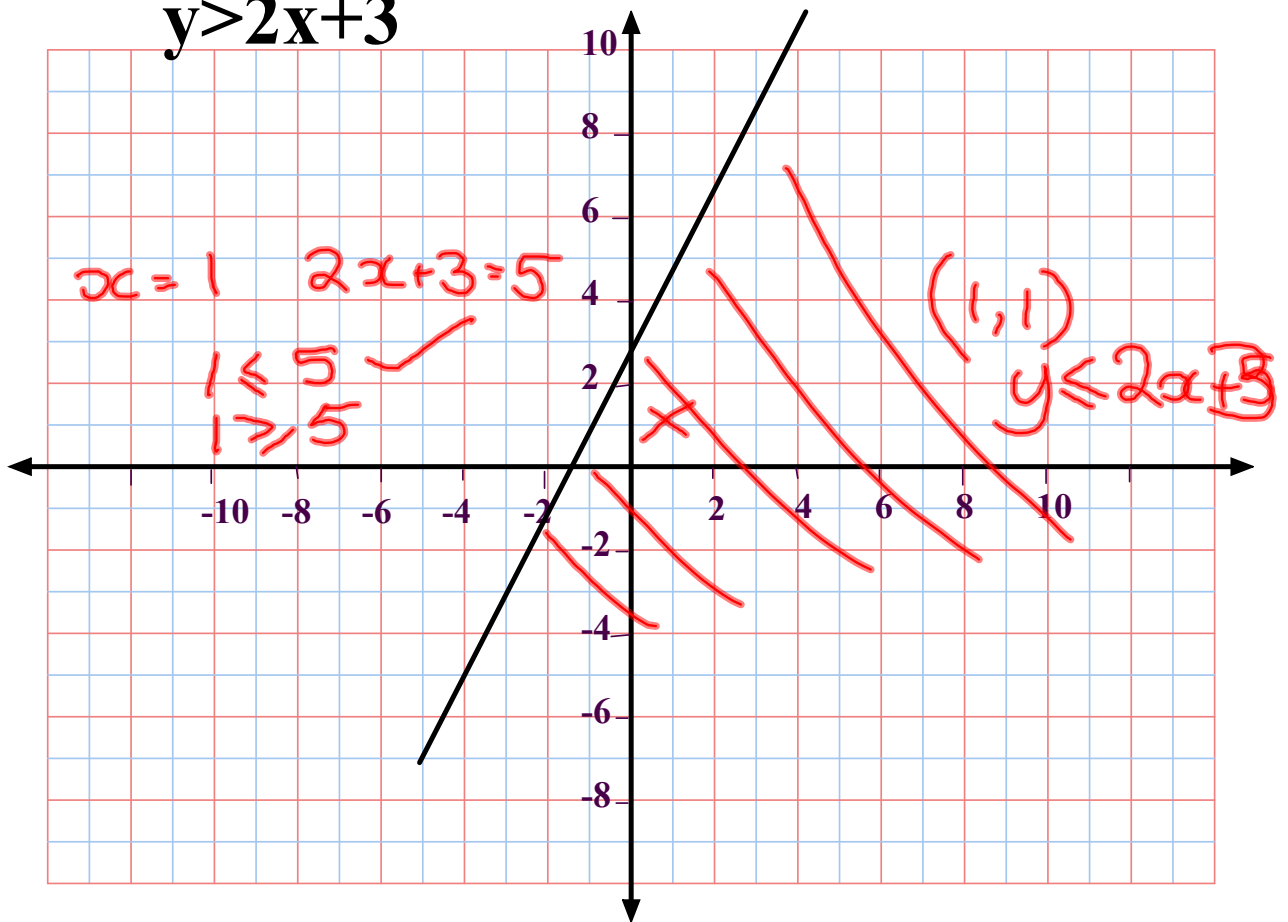
Use a dotted line for $y > 6$

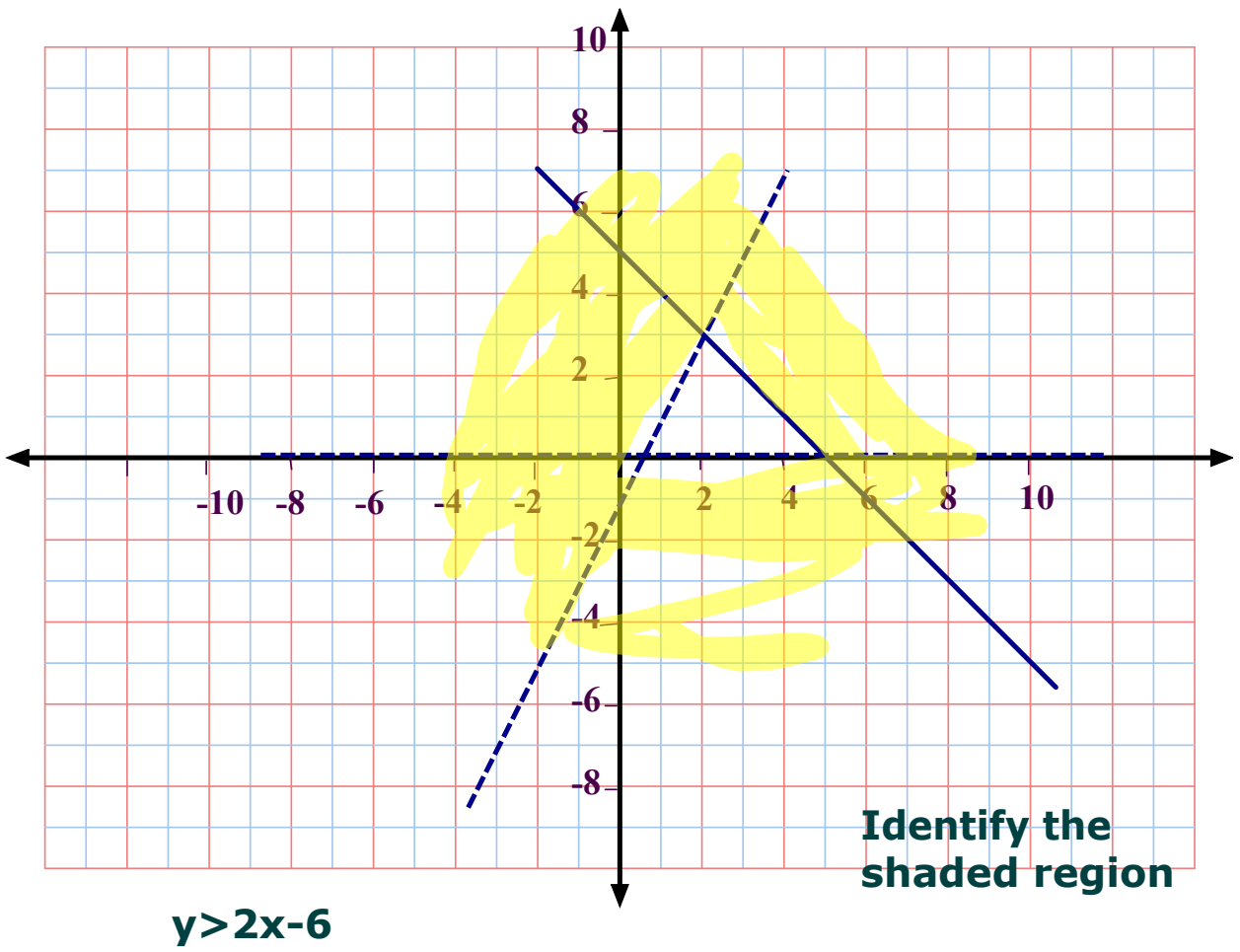
Use a solid line for $y \leq x$ because y can equal x .

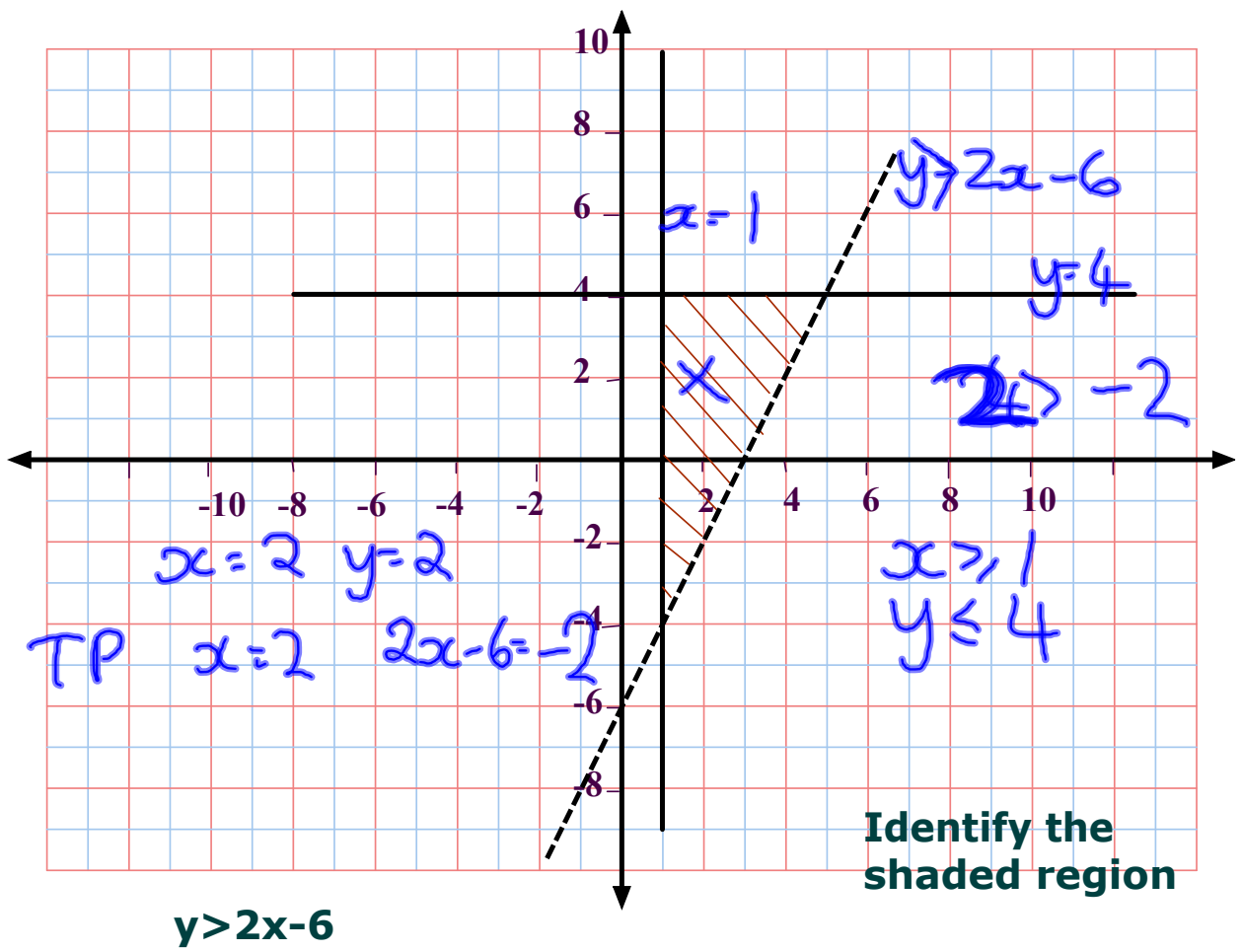


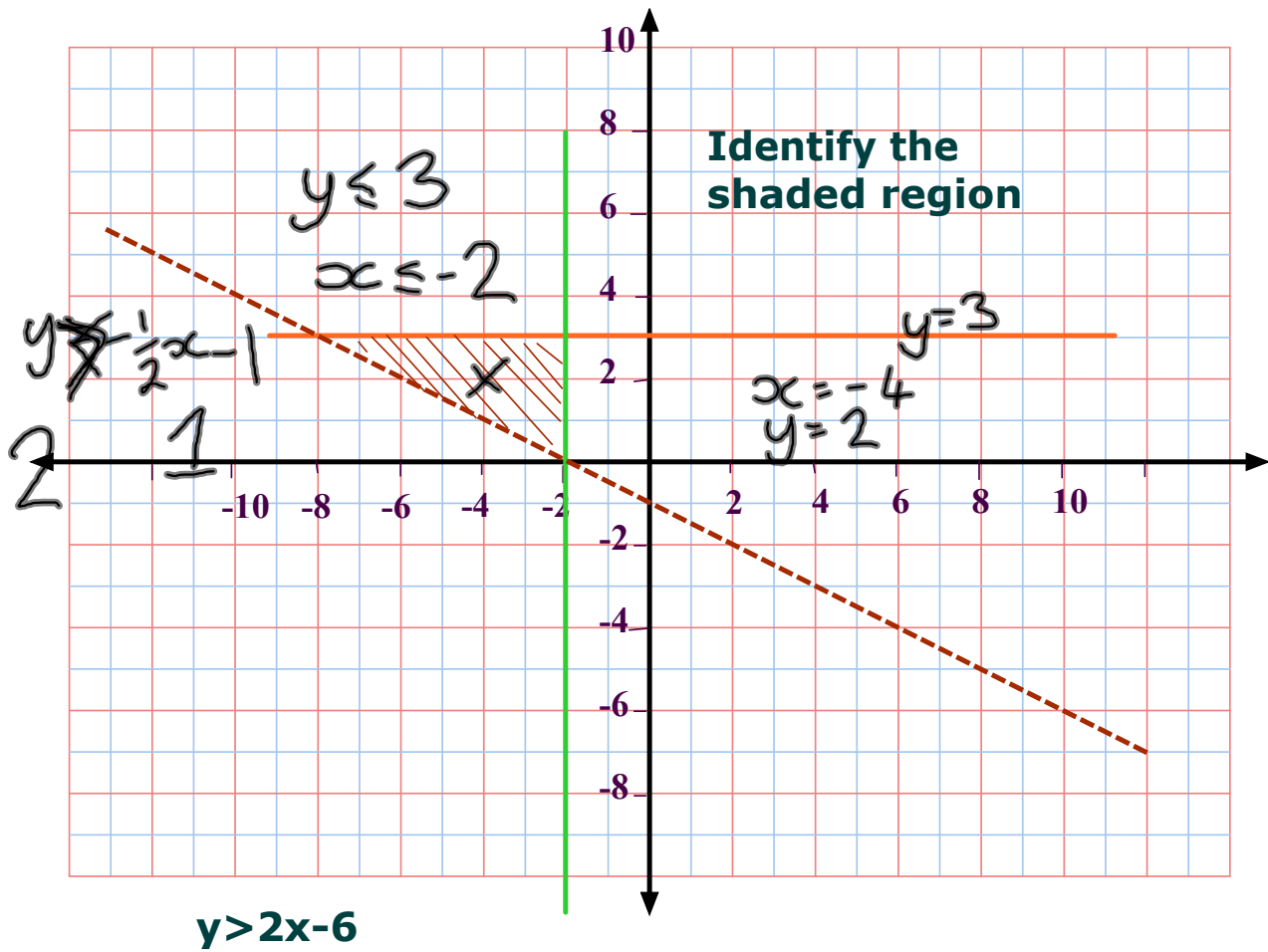


$$y > 2x + 3$$









homework: page 231 c7
 page 233 t2
 question c

for monday