

Warmup 2/ (The measure of an angle
that is vertical to a 6° angle) Created by Mr. Lischwe

**WARMUP: COMPARE HOMEWORK
ANSWERS!!! If someone at your table is
not doing this, politely get them back on
track!**

Check Homework

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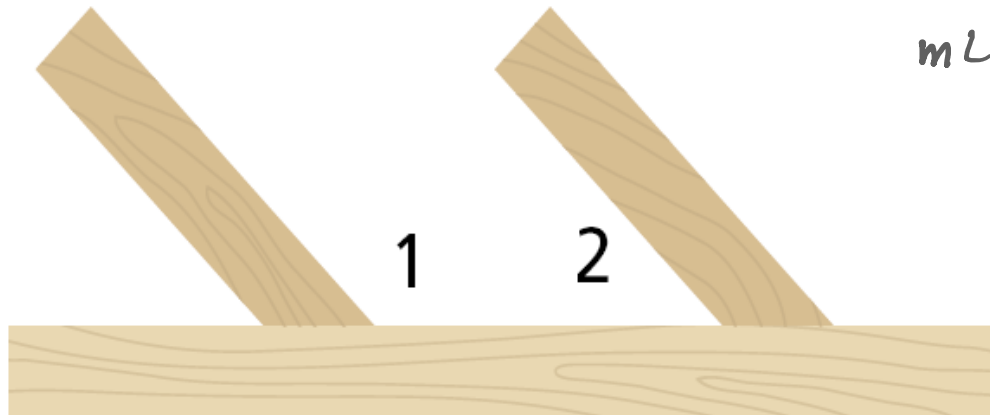
A carpenter is creating a woodwork pattern and wants two long pieces to be parallel.

$m\angle 1 = (8x + 2)^\circ$ and $m\angle 2 = (2x + 10)^\circ$.

If $x = 15$, is A parallel to B?

Piece A

Piece B

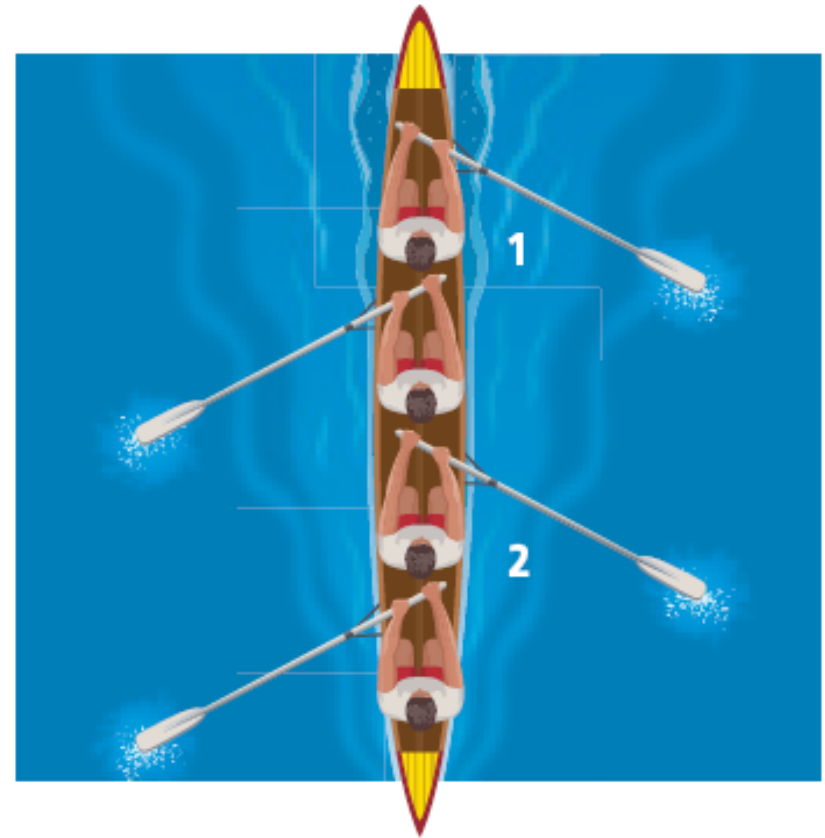


$$\begin{aligned} m\angle 1 &= 8 \cdot 15 + 2 \\ &= 120 + 2 \\ &= 122^\circ \end{aligned}$$

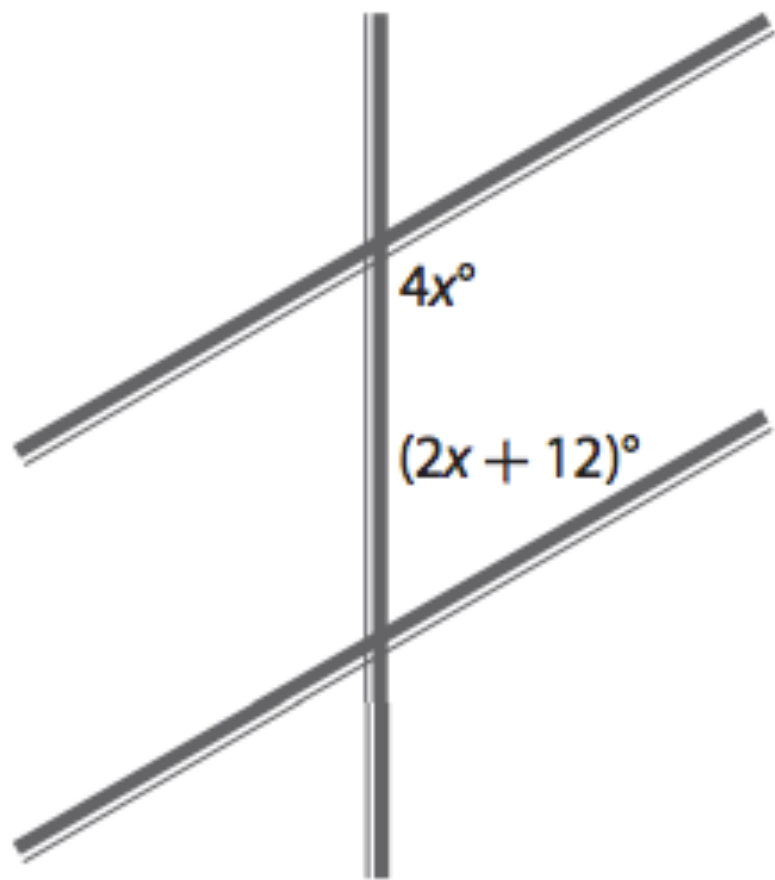
$$\begin{aligned} m\angle 2 &= 2 \cdot 15 + 10 \\ &= 30 + 10 \\ &= 40^\circ \end{aligned}$$

$122 + 40 = 162$, but SSI should add up to 180° **NOT PARALLEL**

What if...? Suppose the corresponding angles on the opposite side of the boat measure $(4y - 2)^\circ$ and $(3y + 6)^\circ$, where $y = 8$. Are the oars parallel?



Find the value of x so that the two lines are parallel.



$$4x + 2x + 12 = 180$$

-12 -12

$$6x = 168$$

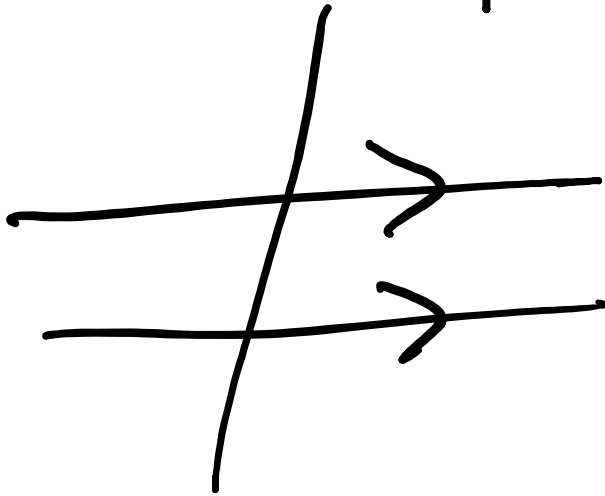
$$x = 28$$

Difference between the regular rules and the converses

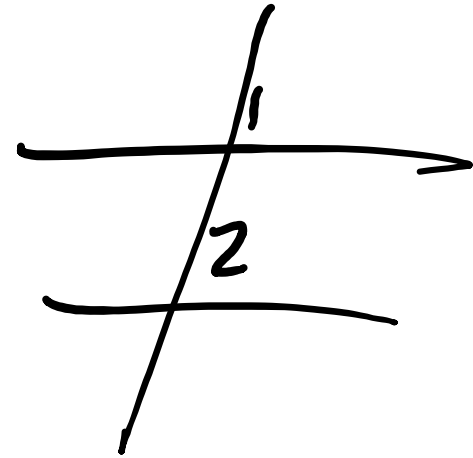
- What is the difference between the **corresponding angles theorem** and the **converse of the corresponding angles theorem**?

Corresponding \angle s Theorem

If



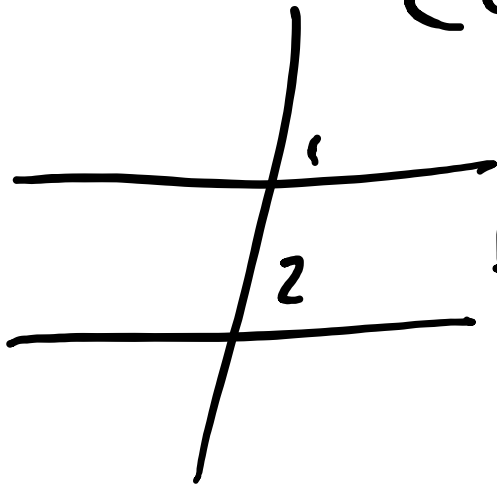
then



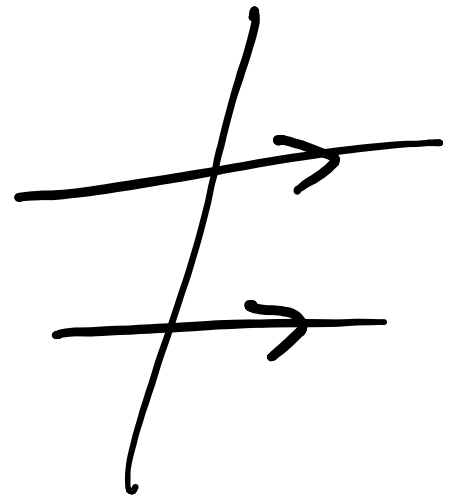
$\angle 1 \cong \angle 2$

Converse

If



$\angle 1 \cong \angle 2$, then



Difference between the regular rules and the converses

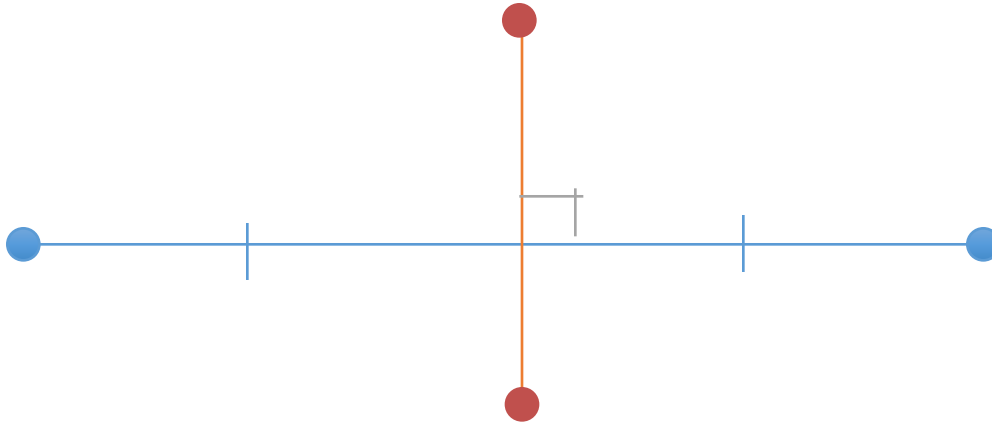
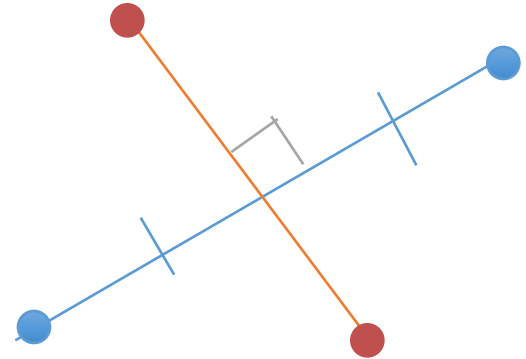
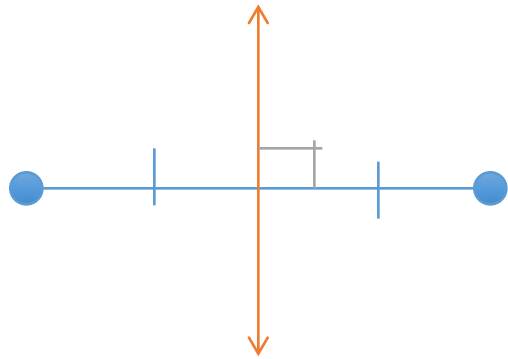
- The regular parallel line rules:
 - The lines ARE parallel. What is true about the angles?
- The converses of these rules:
 - Based on these angles, are the lines parallel?

I need a volunteer!

Draw a point that is equidistant (equal distance) from A and B



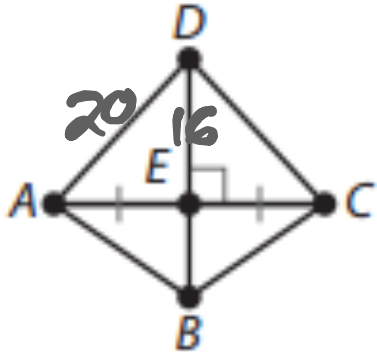
Perpendicular Bisectors



Perpendicular Bisector Theorem

- If a point is on the perpendicular bisector of a segment, then it is equidistant from the endpoints of the segment

Use the diagram shown. \overline{BD} is the perpendicular bisector of \overline{AC} .



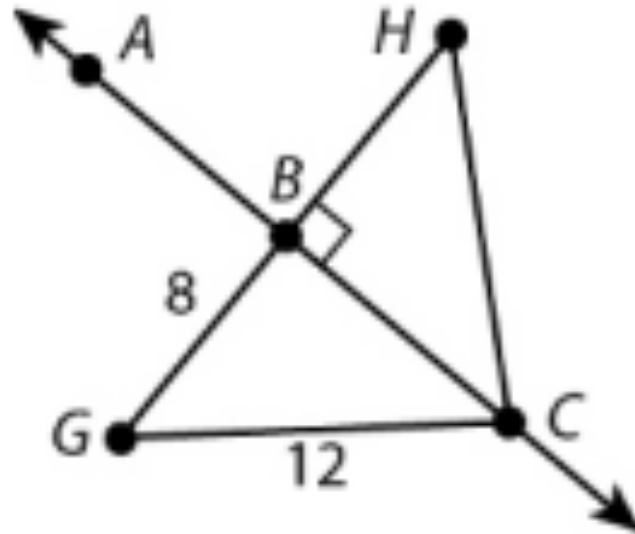
4. Suppose $ED = 16$ cm and $DA = 20$ cm. Find DC .

$$DC = 20$$

5. Suppose $EC = 15$ cm and $BA = 25$ cm. Find BC .

$$BC = 25$$

Given: \overline{AC} is the perpendicular bisector of \overline{GH} .



$$GH = \underline{16}$$

$$CH = \underline{12}$$

Find each measure.

TU

$$TU = UV$$

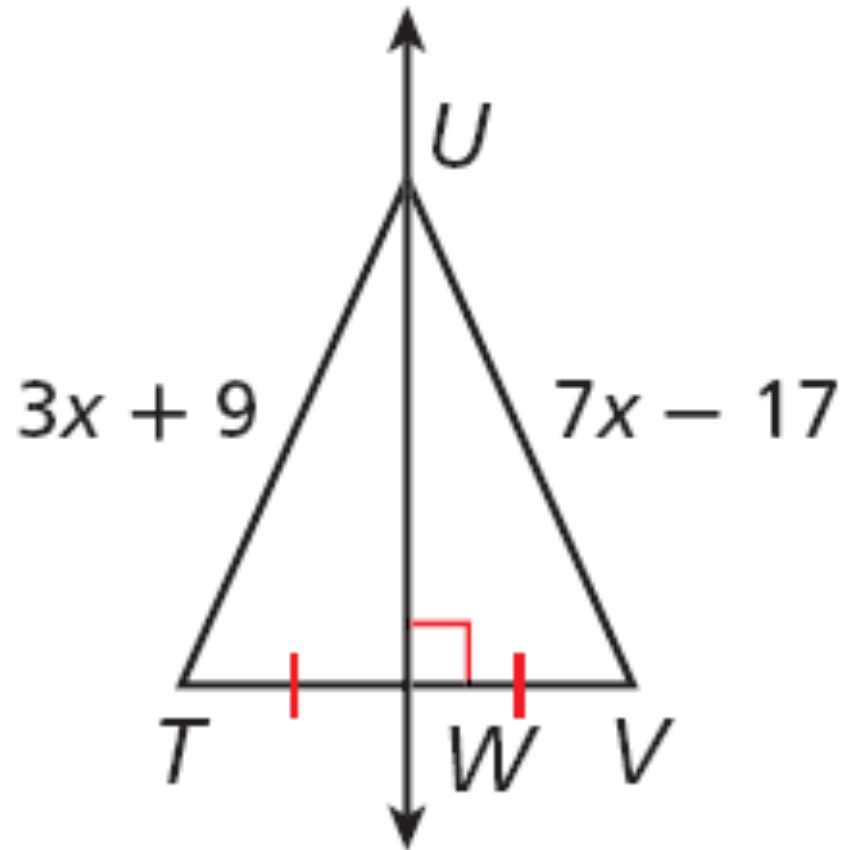
$$3x + 9 = 7x - 17$$

$$9 = 4x - 17$$

$$26 = 4x$$

$$6.5 = x$$

$$\text{So } TU = 3(6.5) + 9 = 28.5.$$

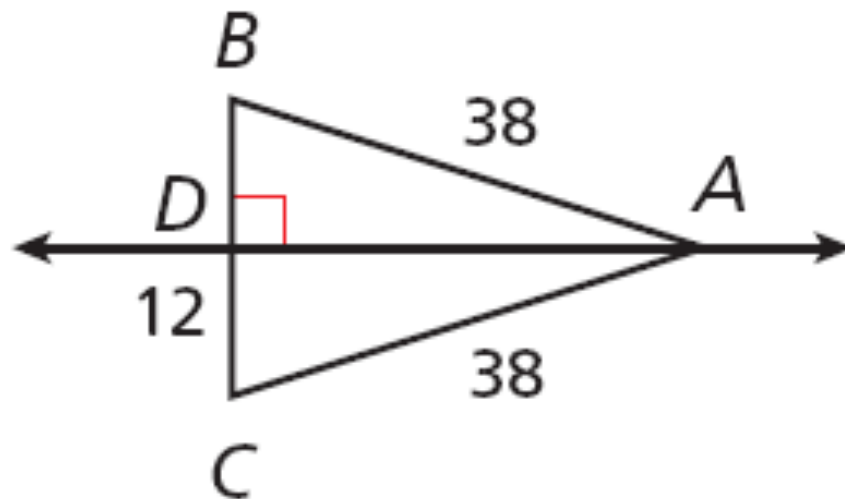


Converse of the Perpendicular Bisector Theorem

- If a point is equidistant from the endpoints of a segment, then it lies on the perpendicular bisector of the segment

Find the measure.

BC



Since $AB = AC$ and $\ell \perp \overline{BC}$, ℓ is the perpendicular bisector of \overline{BC} by the Converse of the Perpendicular Bisector Theorem.

$$BC = 2CD$$

$$BC = 2(12) = 24$$

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What are parallel lines?

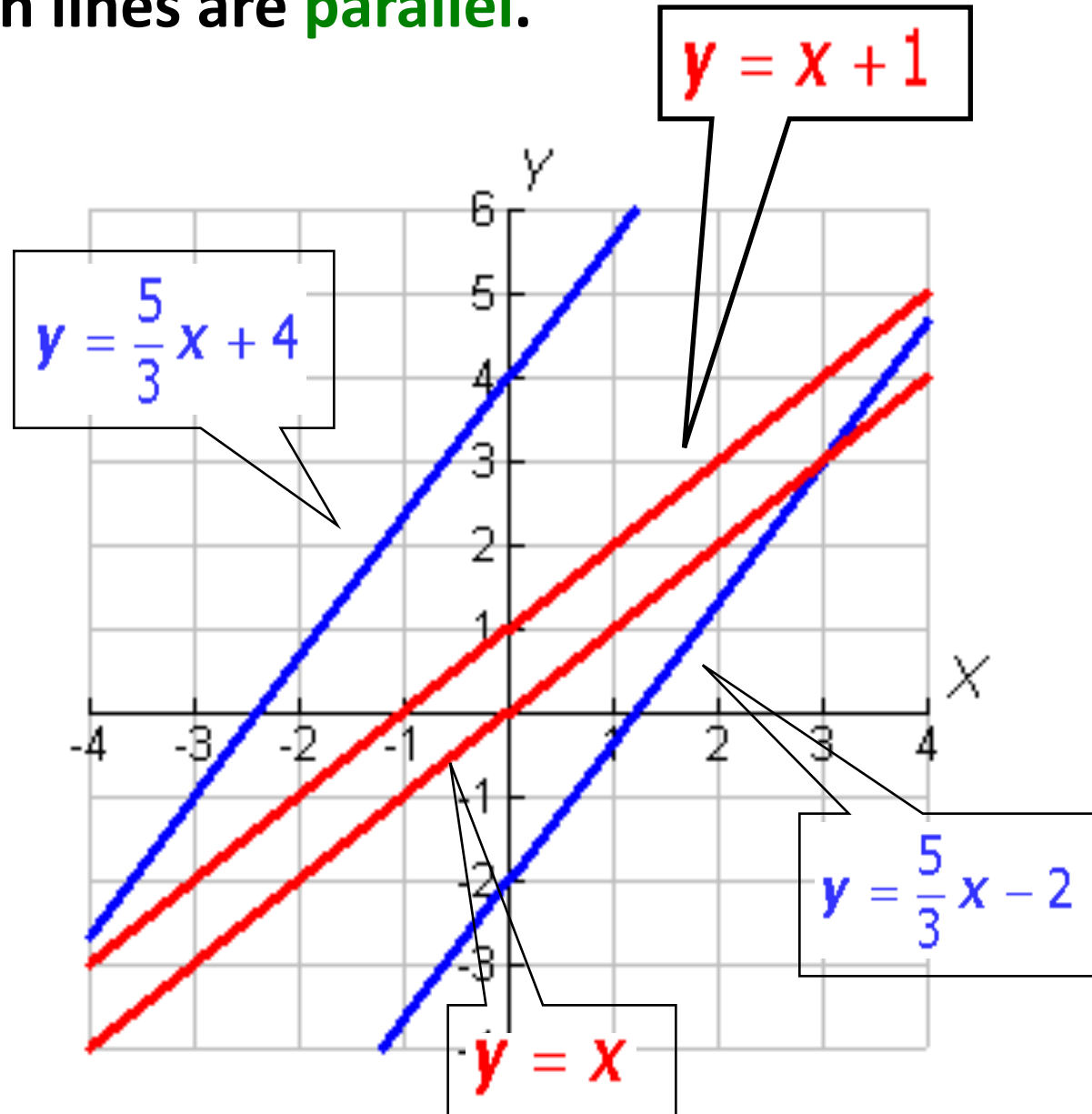
- Lines that are the same distance apart forever and will never intersect

*“They have so much in common
it’s a shame they will never meet”*

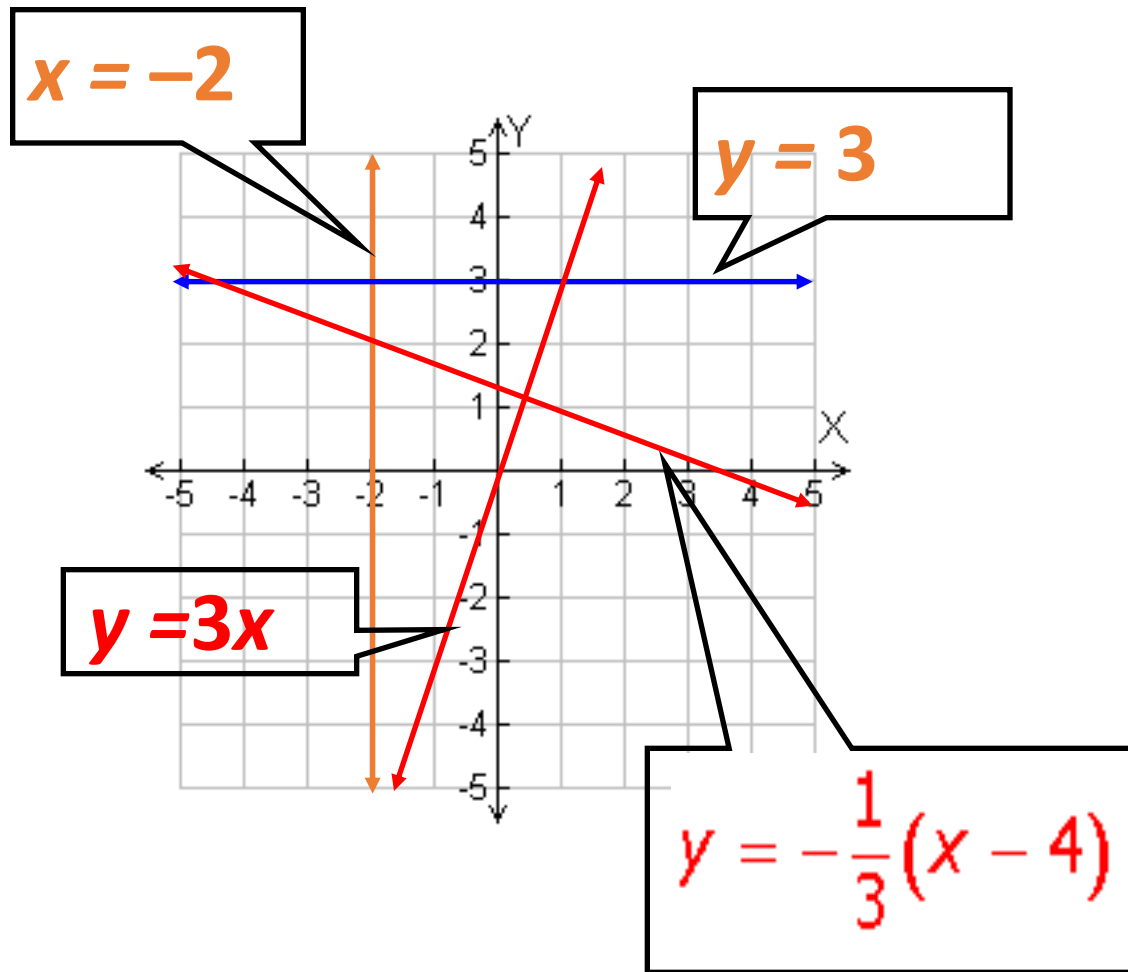
What are perpendicular lines?

- Lines that are at right angles (90 degrees) to each other

Identify which lines are **parallel**.



Identify which lines are perpendicular



Guided Notes

Homework

Parallel Lines WS III