# STATION 1

The measure of an angle is 6 more than twice the measure of the supplement. Find the measure of the supplement of the angle.

$x = 2(180 - x) + 6$

$x = 360 - 2x + 6$

$x = 366 - 2x$

$3x = 366$

$x = 122°$

measure of supplement

$180 - 122 = \boxed{58°}$

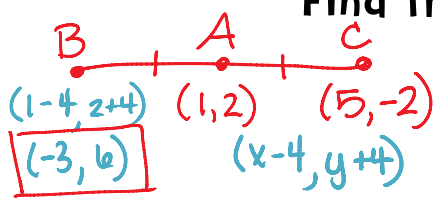
# STATION 2

A is the midpoint of $\overline{BC}$. The midpoint, A, has coordinates (1, 2) and endpoint C has coordinates (5, -2).

$x_m$ $y_m$ midpoint

$x_1$ $y_1$

Find the coordinates of endpoint B. $(x_2, y_2)$ $\boxed{B(-3, 6)}$




midpoint $= \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

Find $x_2$: $x_m = \frac{x_1+x_2}{2}$

$1 = \frac{5+x_2}{2}$

$2 = 5 + x_2$

$-3 = x_2$

Find $y_2$: $y_m = \frac{y_1+y_2}{2}$

$2 = \frac{-2+y_2}{2}$

$4 = -2 + y_2$

$\boxed{6 = y_2}$

# STATION 3

Find the distance of the line segment CD with points C(6, -3) and D(-10, 7).

$x_1$ $y_1$ $x_2$ $y_2$

$d = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$

$d = \sqrt{(-10-6)^2 + (7-(-3))^2}$

$d = \sqrt{(-16)^2 + (10)^2}$

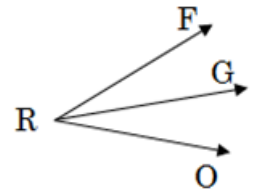
$d = \sqrt{256 + 100}$

$d = \sqrt{356} = \boxed{18.87}$

# STATION 4

**Given:** $\overrightarrow{GR}$ **bisects** $\angle$**FRO**

**Prove:** $\angle$**FRO** $\cong$ $\angle$**GRO**

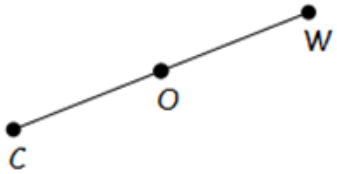



| Statements | Reasons |
|---|---|
| ① $\overrightarrow{GR}$ bisects $\angle FRO$ | ① Given |
| ② $\angle FRO \cong \angle GRO$ | ② If a ray bisects an angle, then it divides the angle into two $\cong$ $\angle$s. |

# STATION 5

**Given:** $\overline{CO} \cong \overline{OW}$

**Conclusion:** O is the midpoint of $\overline{CW}$




**Reason:** If a point divides a segment into two $\cong$ segments, then the point is the midpoint.

# STATION 6

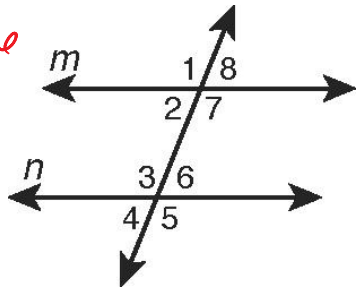
**Using the diagram, name a pair of...**

a. **Same Side Interior Angles** ∠2, ∠3 or ∠7, ∠6

b. **Alternate Exterior Angles** ∠4, ∠8 or ∠1, ∠5

c. **Corresponding Angles** ∠1, ∠3 ∠8, ∠6 ∠2, ∠4 ∠7, ∠5

d. **Vertical Angles** ∠1, ∠7 ∠6, ∠4 ∠2, ∠8 ∠3, ∠5




# STATION 7

**Given the following statements, what property do they justify?**

a. $94° = 94°$ Reflexive

b. If ∠A is complementary to ∠B and ∠B ≅ ∠C, then ∠C is complementary to ∠B. Substitution Property

c. If ∠GEO ≅ ∠ALG and ∠ALG ≅ ∠MAT, then ∠GEO ≅ ∠MAT. Transitive

d. If ∠RED ≅ ∠DEV, then ∠DEV ≅ ∠RED. Symmetric

# STATION 8

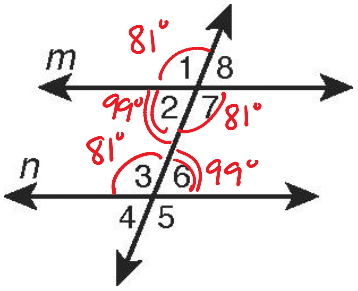
**If m||b and m∠3 = 81°, find...**

a. **m∠1** = 81°

b. **m∠2** = 99°

c. **m∠6** = 99°

d. **m∠7** = 81°



# STATION 9

Find the slope of the line that passes through (3, -4) and (7, 1).

$x_1$ $y_1$ $x_2$ $y_2$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1-(-4)}{7-3} = \frac{5}{4}$$

$$\boxed{m = 5/4}$$

# STATION 10

Write the equation of a line in slope intercept form that is parallel to

$y = mx + b$

same slope

$-3y = 6x - 18$ and goes through the point (-8,4).

x y

Find slope:

$$\frac{-3y}{-3} = \frac{6x}{-3} - \frac{18}{-3}$$

$y = -2x + 6$

$\boxed{m = -2}$

Find b:

$y = mx + b$

$4 = -2(-8) + b$

$4 = 16 + b$

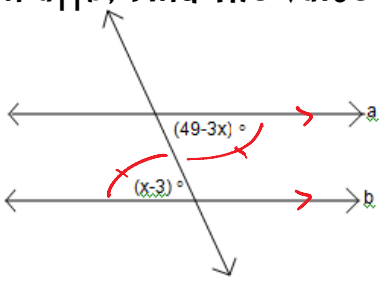
$\boxed{-12 = b}$

$y = mx + b$

$\boxed{y = -2x - 12}$

# STATION 11

Given a||b, find the value of x.




$x - 3 = 49 - 3x$

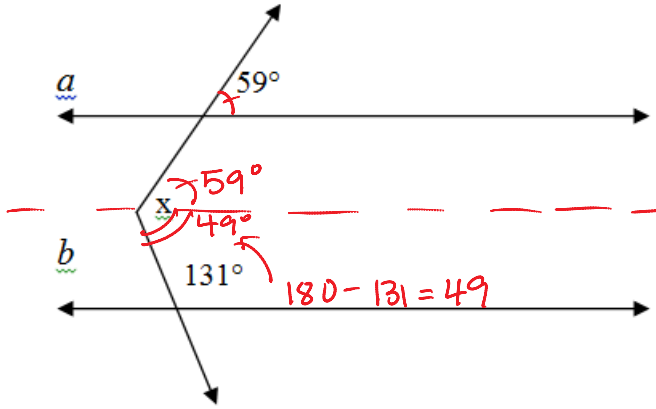
$4x - 3 = 49$

$4x = 52$

$\boxed{x = 13}$

# STATION 12

**Given a||b, find the value of x.**




x = 59 + 49

$\boxed{x = 108°}$

# STATION 13

**Given the following equations, are the lines Parallel, Perpendicular or Neither?** ★Find slope★

$-4x + 7y = -42$

$\frac{7y}{7} = \frac{4x}{7} - \frac{42}{7}$

$y = \frac{4}{7}x - 6$

$\boxed{m = 4/7}$

$4y = 7x + 4$

$\frac{4y}{4} = \frac{7x}{4} + \frac{4}{4}$

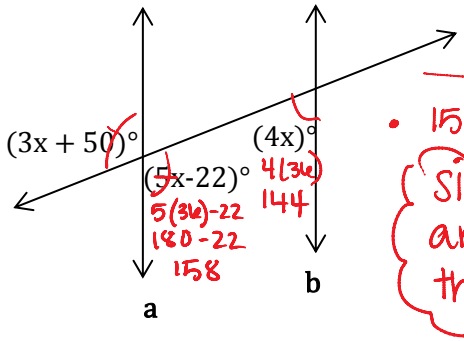
$y = \frac{7}{4}x + 1$

$\boxed{m = 7/4}$

Neither

# STATION 14

**Is a||b? Justify your answer.**




$3x + 50 = 5x - 22$

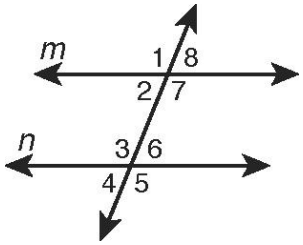
$72 = 2x$

$x = 36$

- $158 + 144 \neq 180$

Since same side interior ∡s are NOT supplementary, then lines are NOT parallel

# STATION 15




**Given: ∠1 is supplementary to ∠6**

**Prove: m || b**

| Statements | Reasons |
|---|---|
| ① ∠1 supp ∠6 | ① Given |
| ② ∠1 and ∠7 are vertical ∡s | ② Assume from Diagram |
| ③ ∠1 ≅ ∠7 | ③ If 2 ∡s are vertical ∡s, then ∡s ≅. |
| ④ ∠7 supp ∠6 | ④ Substitution Property |
| ⑤ m ∥ b | ⑤ If same side interior ∡s are supp, then lines are parallel |

# STATION 16

For the given conditional statement, write the following statements and determine if it is true or false:

**<u>Conditional Statement:</u> If two angles are right angles, then the angles are congruent.** T

a) **<u>Converse Statement:</u>** If ∡s are ≅, then the ∡s are Right ∡s. F

b) **<u>Inverse Statement:</u>** If 2 ∡s are NOT right ∡s, then the ∡s are <u>NOT</u> ≅. F

c) **<u>Contrapositive Statement:</u>** If ∡s are NOT ≅, then the ∡s are <u>NOT</u> right ∡s. T

d) **<u>Biconditional Statement:</u>** TWO ∡s are right ∡s if and only if the ∡s ≅. F

# STATION 17

**Law of Syllogism:** Decide if the conjecture is valid. If it is INVALID, write the correct conjecture.

**Given:** If Sally goes to bed early, then she will not get sick. If Sally eats an apple, then her mom will be happy. If her mom is happy, then Sally goes to bed early.

b ~s a m m b

**Conjecture:** If Sally eats an apple, then she will not get sick.

a ~s

Valid or Invalid?!

reorder

$b \to \sim s$
$a \to m$
$m \to b$

$a \to m$
$m \to b$
$b \to \sim s$

$a \to \sim s$ valid