



# view 3.5 - 3.8 test

## Review 3.5 Working With Sets:

**Example #1:** How do you write "T is the set of all whole numbers that are less than 6"

Roster Form:  $\{0, 1, 2, 3, 4, 5\}$

Set-builder Notation:  $\{x \mid x \text{ is whole number, } x < 6\}$   
 $\{x \mid x = 0, 1, 2, 3, 4, 5\}$

**Example #2:** How do you write the set in roster form? In set builder notation?

"D is the set of whole numbers less than 5"

$$D = \{0, 1, 2, 3, 4\}$$

$$D = \{ \underline{x} \mid x = 0, 1, 2, 3, 4 \}$$

$$\{ x \mid x \text{ whole numbers, } \underline{\underline{\underline{x < 5}}} \}$$

**Example #3:** What are the subsets of the set?

$\{\underline{2}, \underline{3}, \underline{5}\}$   $\{$   $\{\underline{2}\}, \{\underline{3}\}, \{\underline{5}\}$   
 $\{\underline{2, 3}\}$   $\{\underline{2, 5}\}$   $\{\underline{3, 5}\}$   
 $\{\underline{\quad}\}$   $\{\underline{2, 3, 5}\}$

**Examples #4:**

Given a set, C:  $2 < x < 5$  this means the set is  
 $C = \{3, 4\}$

**Example #5:** Is set C a subset of set D?

$$C = \{0, 1, 2, 3\} \quad D = \{0, 1, 2, 3, 4, 5, 6\}$$

yes

$$K = \{4, 5, 6\}$$

The **complement** of a set are all the elements not in the given set:

**Example #6:**

Given the universal set:  $U = \{-3, -2, -1, 0, 1, 2, 3\}$   
 $A = \{-3, -2, -1\}$

The complement is written with an apostrophe,

$$A' = \{0, 1, 2, 3\}$$

## Review 3.8: Unions &amp; Intersections

## Example #7:

(1)  $A \cup B$ 

$$(A) = \{1, 2, 3, 4, 5\} \quad (B) = \{2, 4, 6\}$$

$$\{1, 2, 3, 4, 5, 6\}$$

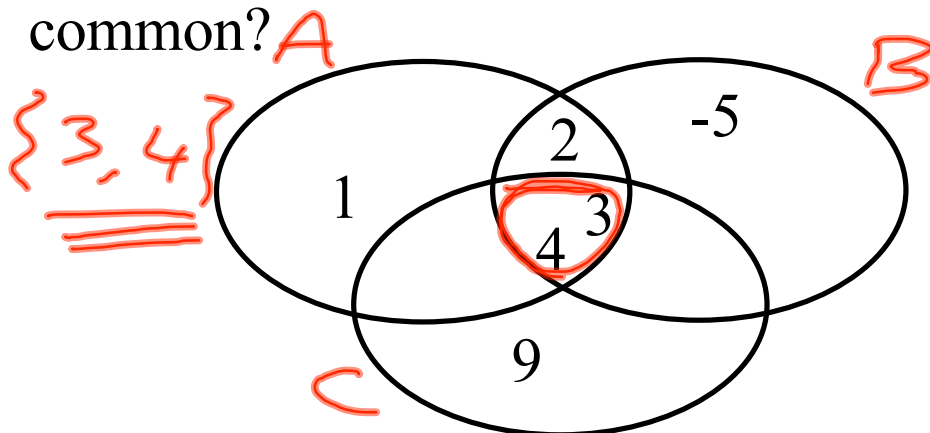
(2)  $C \cap D$ 

$$(C) = \{\underline{a}, b, c, d\} \quad (D) = \{\underline{a}, x, y, z\}$$

$$\{a\}$$

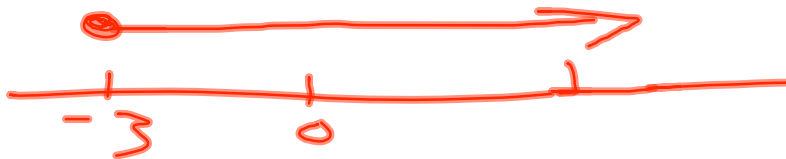
Venn Diagram: **Example #8:**

What numbers do all three sets have in common?



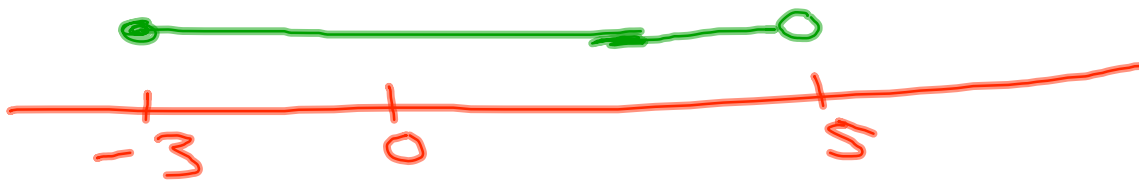
Example #9: Solve and graph  $2x + 10 \geq 4$

$$\begin{aligned} & \frac{-10 \quad -10}{2x \geq -6} \\ & x \geq -3 \end{aligned}$$



Example #10:

Solve and graph  $x \geq -3$  and  $x < 5$



Example #11: Solve and graph

$$4v + 3 < 11 \text{ or } -2v + 7 < 1$$

$$\begin{array}{l} \frac{4v}{4} < \frac{8}{4} \\ v < 2 \end{array} \qquad \begin{array}{l} \frac{-2x}{-2} < \frac{-6}{-2} \\ x > 3 \end{array}$$



Example #12:

$$|4| = 4$$



$$|-4| = 4$$



$$|3| = 3$$



$$|-3| = 3$$



Example #13:



Three friends go shopping.

Anna buys: T-shirt, shoes, glasses, pants, bag, hat, gloves

Ailish buys: hat, lip stick, glasses

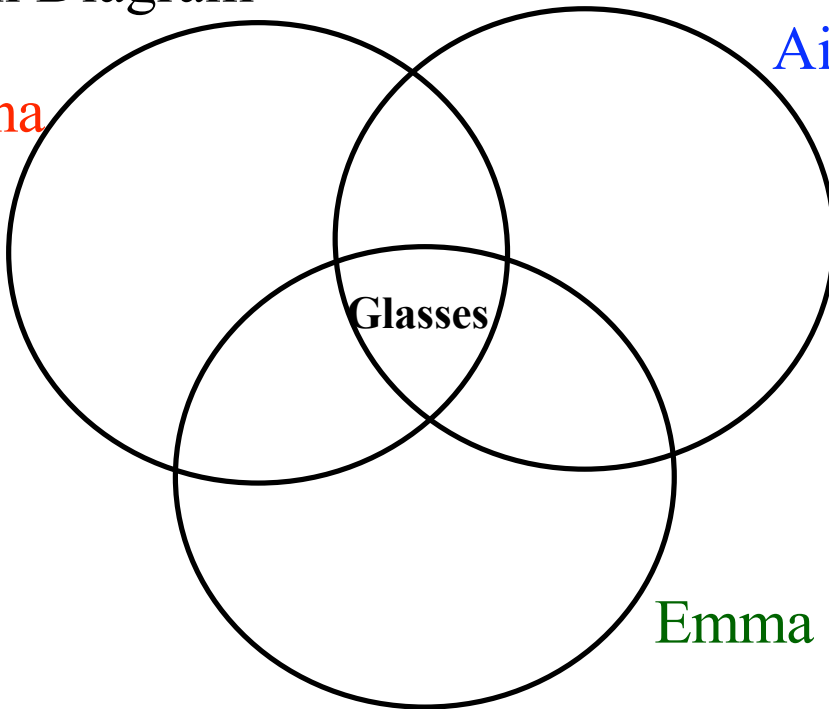
Emma buys: gloves, lip stick, tie, glasses, ear rings, bag

Venn Diagram

Anna

Ailish

Emma



Pants

T-shirt

Hat

Lip stick

Bag

Gloves

Shoes

Tie  
Earrings

Example #14:

What is the symbol  
for subset?



**Example #15:** Which number is a solution of the inequality?  $10.9 < -19$

(1)  $10.9 < x$

- (a) ~~-19~~ (b) ~~-10~~ (c) ~~8~~ (d) 13 ✓

**Example #16:** H is the set of integers less than 5 but greater than or equal to 0

$$\{0, 1, 2, 3, 4\}$$

# Student Review



**Practice #1:** "N is the set of even whole numbers that are less than or equal to 12" in roster form? In set-builder notation?

**Practice #2**

"D is the set of whole numbers less than or equal to 4" in roster form? In set-builder notation?

**Practice #3:** What are the subsets of the set?  
{cat, dog}

**Practice #4:** Is set A a subset of set B?

$$A = \{2, 4, 6\} \quad B = \{6, 4, 2, 0, -2, -4\}$$

The **complement** of a set are all the elements not in the given set:

**Practice #5:**

$$U = \{-8, -6, -4, -2\} \quad T = \{-6, -2\}$$

**Practice #6:**

(1)  $A \cup B$

$$(A) = \{0, 1, 2, 3, 4, 5, 6, 7\} \quad (B) = \{2, 4, 6\}$$

(2)  $C \cap D$

$$(C) = \{-1, 0, 1, 2, 3\} \quad (D) = \{1, 3\}$$

**Practice #7:** Solve and graph  $-2 - x \geq -1$

**Practice #8:**  
Solve and graph  $-2 < -4x + 2 < 6$

**Practice #9:** Solve and graph  
 $3t + 2 < -7$  or  $-4t + 5 < 1$

Practice 10:

$$|4| = \star$$

$$|-4| = \star$$

$$|3| = \star$$

$$|-3| = \star$$

(11) What is the symbol for subset?

(12) What subset is in every set? There are two ways to this subset, write both.

**Practice: Solve and Graph**

(13)  $|x| + 2 = 9$

(14)  $|2n - 6| = 14$

(15)  $|x + 3| < 5$

(16)  $|5x - 4| \geq 16$

**Practice:**

(17)  $6|n - 2| = 12$

(18) Circle the symbol for subsets?

(a)  $\&$       (b)  $>$       (c)  $\cup$       (d)  $\subseteq$

(19) What subset is in every set? What two ways can we write this subset?

(20) Given a set, T:  $5 < x < 8$       this means  
the set is  $C = \{ \quad \quad \quad \}$

## Answers to Student Review

$$\textcircled{1} N = \{0, 2, 4, 6, 8, 10, 12\}$$

$$N = \{x \mid x \text{ is an even whole number, } x < 12\}$$

$$\textcircled{2} D = \{0, 1, 2, 3, 4\}$$

$$D = \{x \mid x \text{ is a whole number, } x \leq 4\}$$

$$\textcircled{3} \{\text{cat}\}, \{\text{dog}\}, \{\}, \{\text{cat, dog}\}$$

$\textcircled{4}$  yes

$$\textcircled{5} T' = \{-8, -4\}$$

$$\textcircled{6} A \cup B = \{0, 1, 2, 3, 4, 5, 6, 7\}$$

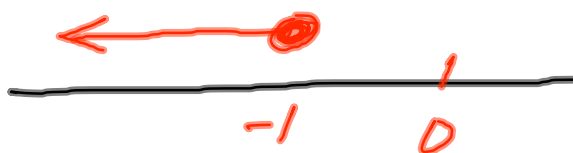
$$A \cap B = \{1, 3\}$$

$$\textcircled{7} \quad \begin{array}{r} -2 - x \geq -1 \\ +2 \qquad \qquad +2 \end{array}$$


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$$\begin{array}{r} -x \geq 1 \\ -1 \qquad -1 \end{array}$$

$$x \leq -1$$

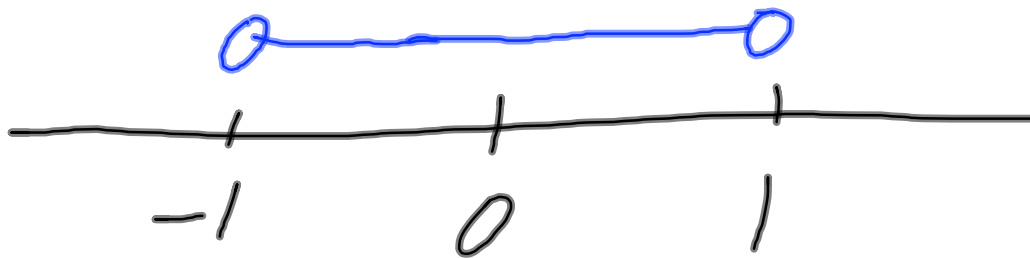


$$\textcircled{8} \quad \begin{array}{r} -2 < -4x + 2 < 6 \\ -2 \qquad \qquad -2 \qquad -2 \end{array}$$


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$$\begin{array}{r} -4 < -4x < 4 \\ -4 \qquad -4 \qquad -4 \end{array}$$

$$1 > x \geq -1$$



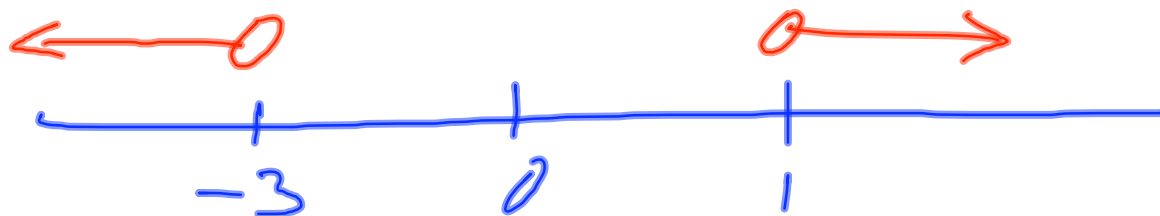
$$\textcircled{9} \quad 3t + \cancel{2} < \cancel{-7} \text{ or } -4t + \cancel{5} < \cancel{1}$$

$\quad \quad \quad \cancel{-2} \quad \quad \quad \cancel{-2}$ 
 $\quad \quad \quad \cancel{-5} \quad \quad \quad \cancel{-5}$

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$$\frac{\cancel{3}t}{\cancel{3}} < \frac{-9}{\cancel{3}} \text{ or } \frac{-\cancel{4}t}{\cancel{-4}} < \frac{-4}{\cancel{-4}}$$

$$t < -3 \text{ or } t > 1$$





$$\textcircled{14} |2n - 6| = 14$$

$$\begin{array}{r} 2n - 6 = 14 \\ +6 \quad +6 \\ \hline \end{array}$$

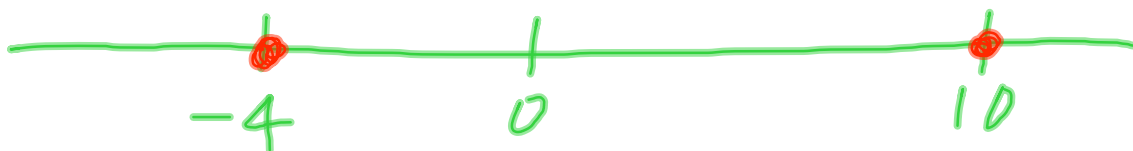
$$\begin{array}{r} 2n = 20 \\ \hline 2 \end{array}$$

$$n = 10$$

$$\begin{array}{r} 2n - 6 = -14 \\ +6 \quad +6 \\ \hline \end{array}$$

$$\begin{array}{r} 2n = -8 \\ \hline 2 \end{array}$$

$$n = -4$$



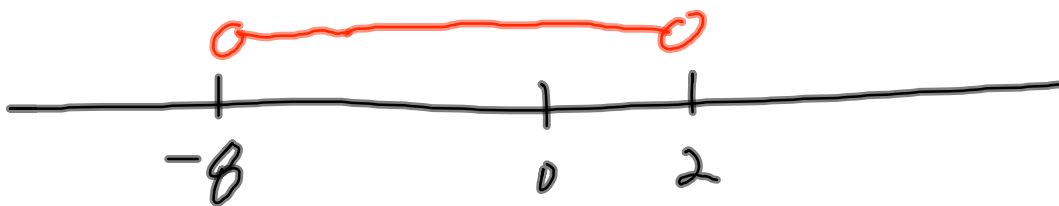
$$(15) |x+3| < 5$$

$$\begin{array}{r} x+3 < 5 \\ -3 \quad -3 \\ \hline \end{array}$$

$$x < 2$$

$$\begin{array}{r} x+3 > -5 \\ -3 \quad -3 \\ \hline \end{array}$$

$$x > -8$$



$$(16) \quad |5x - 4| \geq 16$$

$$\frac{5x - 4}{+4} \geq \frac{16}{+4}$$

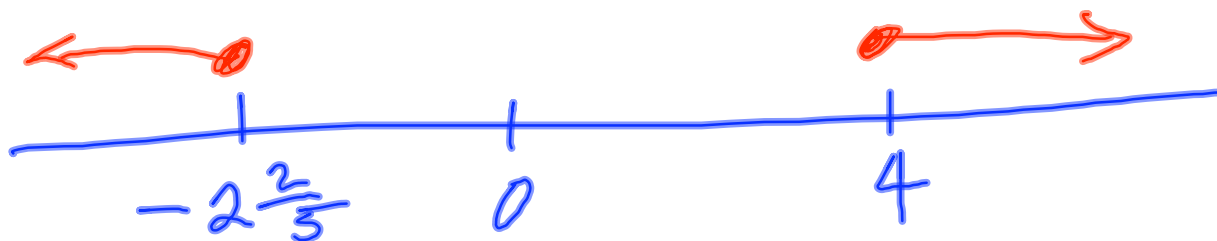
$$\frac{5x}{5} \geq \frac{20}{5}$$

$$x \geq 4$$

$$\frac{5x - 4}{+4} \leq \frac{-16}{+4}$$

$$\frac{5x}{5} \leq \frac{-12}{5}$$

$$x \leq -2\frac{2}{5}$$

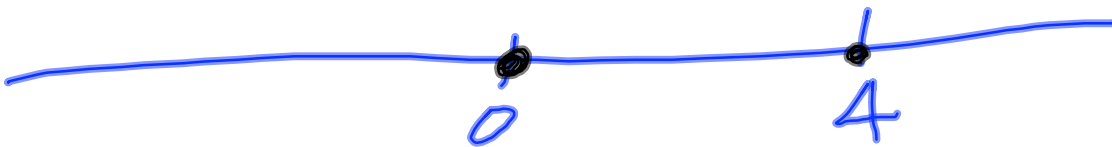


$$\textcircled{17} \frac{6}{6} |n-2| = \frac{12}{6}$$

$$|n-2| = 2$$

$$\begin{array}{r} n-2 = 2 \\ +2 \quad +2 \\ \hline n = 4 \end{array}$$

$$\begin{array}{r} n-2 = -2 \\ +2 \quad +2 \\ \hline n = 0 \end{array}$$



18 D

19  $\emptyset$  { }

20 {6,7}

Home

FUN

# Green workbook

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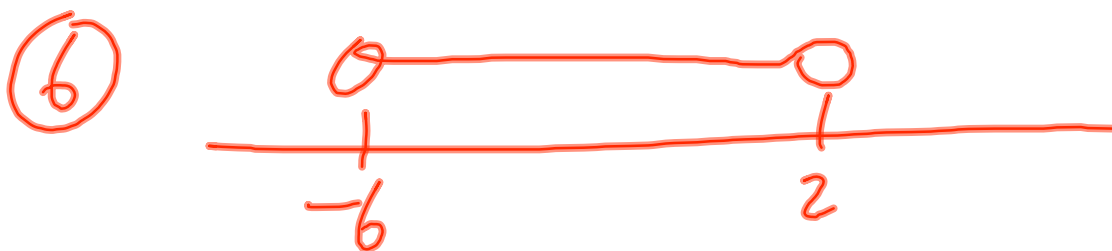
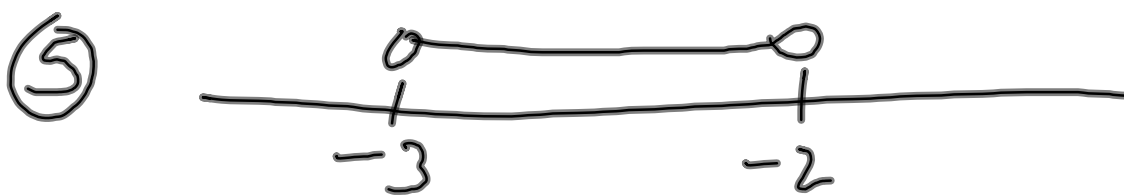
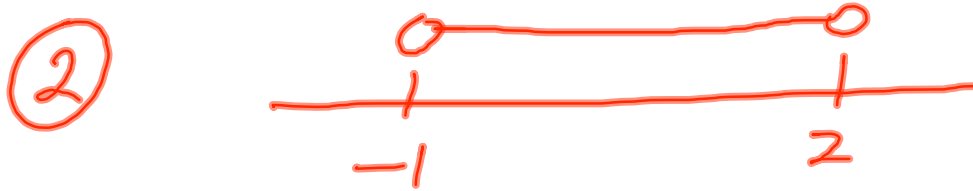
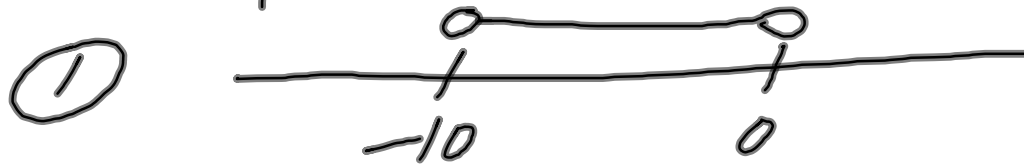
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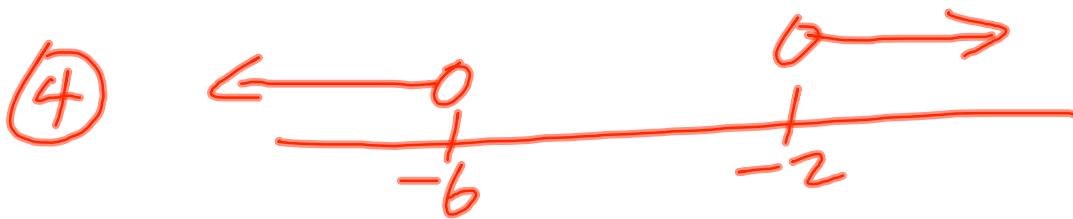
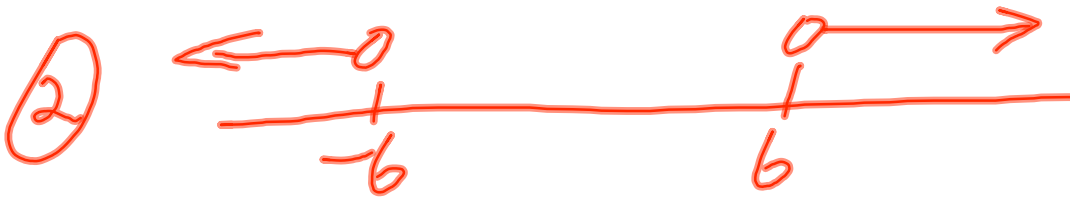
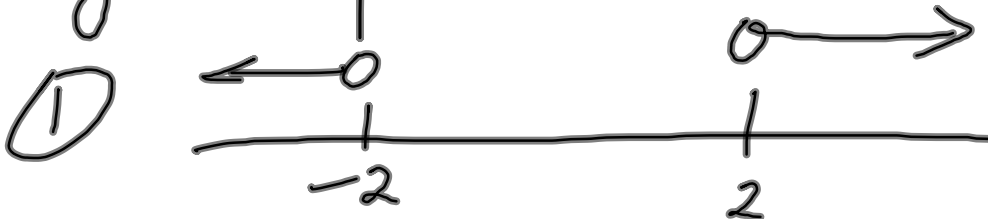
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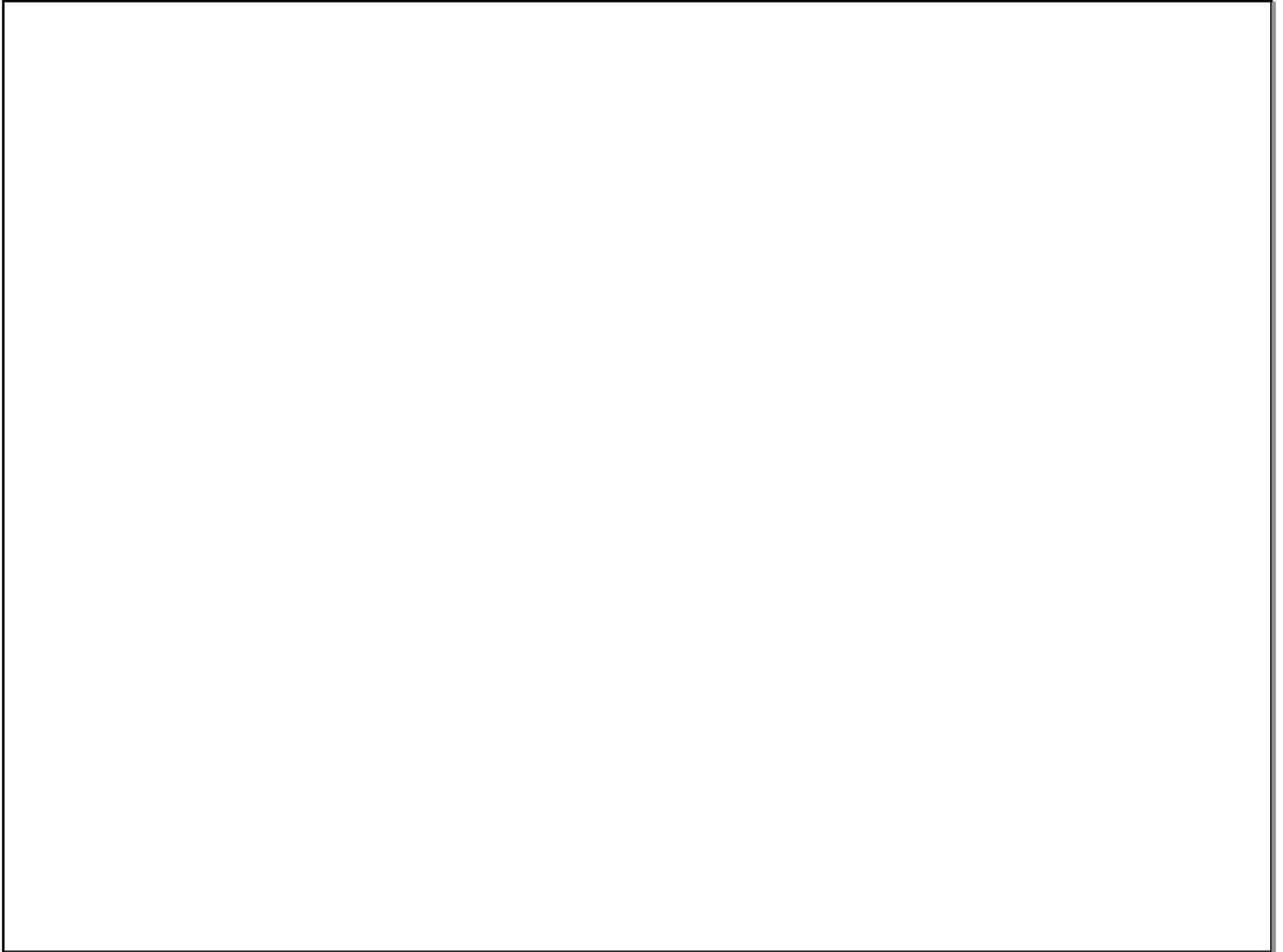
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