Name: _____

Write your questions here!

[PACKET 3.2: SOLVING TWO-STEP EQUATIONS] 1

Examples:

1. $2\square + 5 = 13$

Do	Undo

2. $4\square - 7 = 17$

Do	Undo

3. $\frac{1}{2}\square = 3$

Do	Undo

4. $\frac{x}{2} + 3 = 19$

Do	Undo

Check:

5. $\frac{x}{2} - 1 = 4$

Do	Undo

Write your questions here!

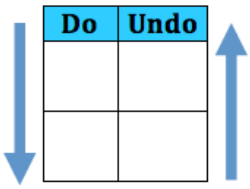
[PACKET 3.2: SOLVING TWO-STEP EQUATIONS] 2

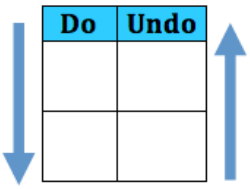
Edit to Rule

Previous rule: What you do to one side you must do to the other!
More precise rule: "When you _____ of one side, you must do the _____ to the other!

6. $2x - 14 + 4 = 10$

7. $2j - 4j + 10 = 12$





Definition of

Consecutive Numbers

Numbers which follow each other in order, without gaps, from smallest to largest.

12, 13, 14 and 15 are consecutive numbers.

22, 24, 26 and 28 are consecutive even numbers.

Example: The sum of 4 consecutive odd integers is 136. What are the four integers?

Now, summarize your notes here!

3.2 *Two Step Equations* Practice Problems

Choose the best term from the list to complete each sentence.

1.

Vocabulary

isolate the variable

equation

inverse operations

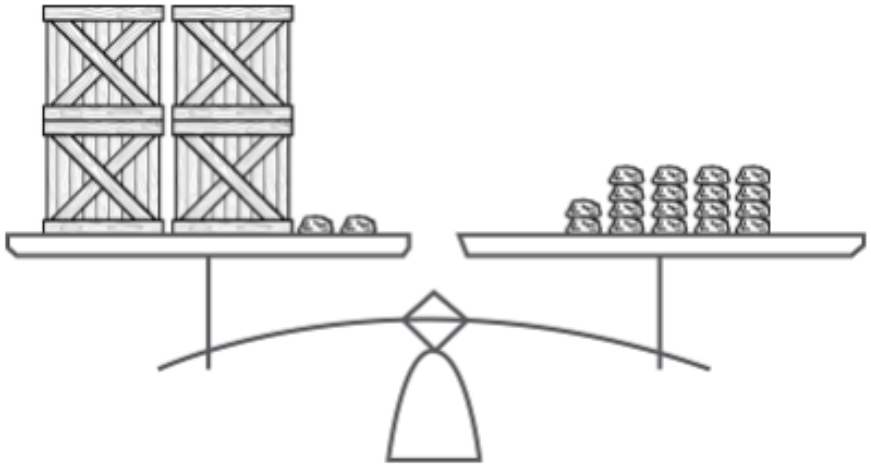
_____ are mathematical operations that undo each other.

To solve an equation you need to _____.

A(n) _____ is a mathematical statement that two expressions are equivalent.

Mr. Anderson has made several picture representations on his clipboard of other combinations of crates and rocks that balanced. Can you figure out how many rocks are in each set of crates?

2.



3.

DO	UNDO

Solve

4x	+ 7	=	3
	4x	=	
	x	=	

Check

$4x + 7 = 3$

$4(\_\_\_) + 7 = 3$

$\_\_\_\_ + 7 = 3$

$\_\_\_\_ = 3$

4.

DO	UNDO

Solve

$\frac{x}{-2}$	- 8	=	10
	$\frac{x}{-2}$	=	
	x	=	

Check

$\frac{x}{-2} - 8 = 10$

$\frac{\_\_\_}{-2} - 8 = 10$

$\_\_\_\_ - 8 = 10$

$\_\_\_\_ = 10$

5. **Solve $5v - 12 = 8$.**

$5v - 12 = 8$

$\square \quad \square$

Add _____ to each side.

$\frac{5v}{\square} = \frac{\square}{\square}$

Simplify.

Divide each side by _____

$v = \square$

Simplify.

Check: $5v - 12 = 8$

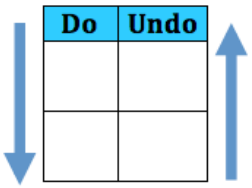
$5(\square) - 12 \stackrel{?}{=} 8$

$\square - 12 \stackrel{?}{=} 8$

$\square = 8$

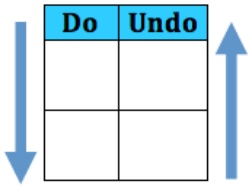
6. Solve each equation. Show your check.

a. $15x + 3 = 48$



✓

b. $\frac{t}{4} - 10 = -6$



✓

c. $\frac{b}{3} + 13 = 11$

✓

d. $9g + 11 = 2$

✓

e. $\frac{v+9}{3} = 8$

✓

f. $7(9 + k) = 84$

✓

Solve each equation.		
7. $16 = -p + 7$	8. $\frac{x-5}{3} = 9$	9. $8 + \frac{b}{-4} = 5$
Solve each equation.		
10. $9 - 4b = 21$	11. $9x - 7 = -7$	12. $-1 - 2v = 11$

Complete the following algebraic proofs using the reasons above. If a step requires simplification by combining like terms, write simplify.

13. Given: $3k + 5 = 17$
Prove: $k = 4$

Statements		Reasons
1.	$3k + 5 = 17$	1.
2.	$3k = 12$	2.
3.	$k = 4$	3.

14. Given: $-6a - 5 = -95$
Prove: $a = 15$

Statements	Reasons

Solve each equation. (Make sure to combine like terms)

15. $6a + 5a = -11$

16. $-6n - 2n = 16$

17. $4x + 6 + 3 = 17$

18. $0 = -5n - 2n$

19. $6r-1+6r=23$

20. $r+11+8r=29$

21. $60=24v+6v$

22. $-10p+9p=12$

23. $42=8m+13m$

24. $a-2+3=-2$

SKILLZ REVIEW			
1. Simplify. $-\frac{1}{3}+\frac{4}{8}$	2. Simplify. $-\frac{2}{3}\cdot\left(\frac{5}{12}\right)$	3. Write each decimal below as a fraction or a mixed number in simplest form. 4.4 0.05	4. Write each fraction or mixed number below as a decimal. $8\frac{2}{8}$ $\frac{18}{25}$
5. Simplify. $7\frac{4}{8}+\left(-8\frac{1}{2}\right)$	6. Simplify. $-1\frac{4}{7}\cdot\left(-1\frac{1}{5}\right)$		
7. Evaluate the expression. $3x^2-4 \text{ for } x=-1$			

Application And Extension

Translate each sentence into an equation. Then find each number.

1. The Four less than twice a number is negative 2.

2. The quotient of 4 more than x and 5 is 11.

3. FIND THE ERROR Alicia and Ben are translating the following sentence into an equation: *Three less than two times a number is 15.*

Alicia	Ben
$3 - 2x = 15$	$2x - 3 = 15$

Who is correct? Explain your reasoning.

Solve the equation in two different ways.
(1st Way) Solve using the "do and undo" table.
(2nd Way) Solve by distributing the coefficent first and then using the "do and undo" table.

4. *(1st)* $-3(x-4)=12$ *(2nd Way)* $-3(x-4)=12$

5. *(1st Way)* $2(x-5)=9$ *(2nd Way)* $2(x-5)=9$

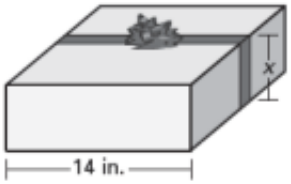
6. Complete the Proof Table.

Statements	Reasons
1) 44 – 2(3x + 4) = -18	1)
2) 44 - 6x - 8 = -18	2)
3) -6x + 36 = -18	3)
4) -6x = -54	4)
5) x = 9	5)

Write and Solve an equation to find each unknown.

7. **OLYMPICS** **In the 2000 Summer Olympics, the United States won 9 more medals than Russia. Together they won 185 medals. How many medals did the United States win?**

8. ***Wrapping a Package*** It takes 70 inches of ribbon to make a bow and wrap the ribbon around a box. The bow takes 32 inches of ribbon. The width of the box is 14 inches. What is the height of the box?



9. The sum of two consecutive whole numbers is 29.

a Let n be the smallest of the two numbers. Write an equation to represent this.

b Solve the equation to find the value of n.

c What are the two numbers?

10. The sum of two consecutive numbers is 121. Let n be the smaller number.

a Write an equation to represent the sum of the two numbers.

b Solve the equation to find n.

c Find the values of the consecutive numbers.

11. Find 3 consecutive odd integers whose sum is -3. (Hint: Let n = smallest odd integer)

12.	Find two consecutive odd integers whose sum is 128.
13.	Find 3 consecutive even integers whose sum is 90.
14.	Sally is eight years older than John. John is fourteen years older than Karen. If the sum of all three ages is 90, how old is each person?
15.	**AGES** Lawana is five years older than her brother Cole. The sum of their ages is 37. How old is Lawana?