

ADDITIONAL HELP WITH EQUATIONS

NAME: _____

PRACTICE A

CHECK OUT THIS EXAMPLE BEFORE YOU BEGIN.



HELPFUL EXAMPLE

WHAT WOULD YOU MOVE TO SOLVE THIS EQUATION?

$$94 = h + 30 \longrightarrow 94 \begin{matrix} \text{😊} \\ \text{🧱} \end{matrix} h + 30 \begin{matrix} \text{😞} \\ \text{🧱} \end{matrix}$$

SINCE THE h AND 30 ARE NOT HAPPY I NEED TO SEPARATE THEM, BUT I NEED TO KEEP THE 94 HAPPY TOO. WHICH MEANS, I WOULD MOVE THE 30 TO THE OTHER SIDE.

WHAT WOULD YOU MOVE TO SOLVE EACH EQUATION?

1. $s - 15 = 72$

$$\begin{matrix} \text{😞} & \text{😞} & \text{😊} \\ s & - & 15 \end{matrix} \begin{matrix} \text{🧱} \\ \text{🧱} \\ \text{🧱} \end{matrix} 72$$

I WOULD MOVE THE _____.

2. $56 = t \circ 8$

$$\begin{matrix} \text{😊} & \text{😞} & \text{😞} \\ 56 & \begin{matrix} \text{🧱} \\ \text{🧱} \\ \text{🧱} \end{matrix} & t \circ 8 \end{matrix}$$

I WOULD MOVE THE _____.

3. $\frac{k}{5} = 20$

$$\begin{matrix} \text{😞} & \text{😊} \\ \text{😞} & \frac{k}{5} \end{matrix} \begin{matrix} \text{🧱} \\ \text{🧱} \\ \text{🧱} \end{matrix} 20 \text{ 😊}$$

I WOULD MOVE THE _____.

4. $32 + a = 88$

I WOULD MOVE THE _____.

5. $45 = c - 14$

I WOULD MOVE THE _____.

6. $6c = 42$

I WOULD MOVE THE _____.

7. $\frac{w}{3} = 12$

I WOULD MOVE THE _____.

8. $29 = y + 4$

I WOULD MOVE THE _____.

9. $x - 20 = 26$

I WOULD MOVE THE _____.

DESCRIBE HOW YOU WOULD CHANGE EACH EQUATION TO GET THE VARIABLE ALONE.

HELPFUL EXAMPLE

$$23 = e - 4 \longrightarrow 23 \begin{matrix} \text{😊} \\ \text{🧱} \end{matrix} e - 4 \begin{matrix} \text{😞} \\ \text{🧱} \end{matrix}$$

THE e AND 4 ARE NOT HAPPY, BUT I NEED TO KEEP THE 23 HAPPY TOO. I WOULD MOVE THE 4 BY ADDING BOTH SIDES BY 4.

ANSWER: ADD BOTH SIDES BY 4.

OPPOSITE OPERATIONS	
ADDITION \longleftrightarrow	SUBTRACTION
MULTIPLICATION \longleftrightarrow	DIVISION

DON'T FORGET, WHEN YOU MOVE A NUMBER TO THE OPPOSITE SIDE OF THE WALL (EQUATION) YOU NEED TO DO THE OPPOSITE OPERATION.



10. $4y = 24$

I WOULD _____

11. $14 + t = 34$

I WOULD _____

12. $56 = h - 23$

I WOULD _____

13. $27 = d + 8$

I WOULD _____

14. $16 = \frac{n}{4}$

I WOULD _____

15. $z - 8 = 12$

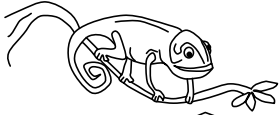
I WOULD _____

ADDITIONAL HELP WITH EQUATIONS

PRACTICE B

NAME: _____

SOLVE .



HELPFUL EXAMPLE

$$u - 13 = 30$$

$$\text{☹} \quad \text{☹} \quad \text{☺}$$

$$u - 13 \text{ [block]} = 30$$

$$\begin{array}{r} u - 13 \text{ [block]} = 30 \\ + 13 \text{ [block]} \\ \hline u - 0 = 43 \end{array}$$

$$\text{☺} \quad u = 43 \quad \text{☺}$$



THE 30 IS HAPPY, BUT THE u AND THE 13 ARE NOT. IF WE MOVE THE u TO THE 30'S SIDE IT WILL NOT BE HAPPY ANYMORE, SO WE NEED TO MOVE THE 13.

SEE, EVERYONE'S HAPPY NOW. I LIKE HAPPY!

SOLVE EACH EQUATION.

1. $\frac{r}{2} = 12$

2. $54 = t + 12$

3. $g - 10 = 31$

4. $26 + d = 43$

5. $17 = v - 18$

6. $13h = 39$

7. $x - 31 = 48$

8. $90 = b \circ 10$

9. $\frac{n}{8} = 6$

10. $28 = f + 12$

11. $46 + x = 94$

12. $37 = w - 27$

13. $28 = 4h$

14. $44 = 19 + k$

15. $9h = 81$

ADDITIONAL HELP WITH EQUATIONS

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PRACTICE C

REMEMBER, YOU WANT TO MOVE THE NUMBER THAT IS **NOT** ATTACHED TO THE VARIABLE FIRST.



HELPFUL EXAMPLE

WHAT WOULD YOU MOVE TO SOLVE THIS EQUATION?

$$30 = 4h - 6 \longrightarrow 30 \begin{matrix} \text{😊} \\ \text{🧱} \end{matrix} \begin{matrix} \text{😞} \\ \text{😞} \end{matrix} 4h - 6$$

THE 4, h, AND 6 ARE NOT HAPPY. THE 6 IS THE FARTHEST AWAY FROM THE h, SO I WOULD FIRST MOVE IT OVER TO THE 30. THEN I WOULD MOVE THE 4.

ANSWER: FIRST I WOULD MOVE THE 6.
THEN I WOULD MOVE THE 4.

WHAT WOULD YOU MOVE TO SOLVE EACH EQUATION?

1. $9e - 3 = 24$

2. $18 = 5d + 8$

3. $\frac{v}{6} - 2 = 2$

FIRST I WOULD MOVE THE _____. FIRST I WOULD MOVE THE _____. FIRST I WOULD MOVE THE _____.
THEN I WOULD MOVE THE _____. THEN I WOULD MOVE THE _____. THEN I WOULD MOVE THE _____.

4. $13 = 3 + \frac{a}{2}$

5. $7d + 8 = 50$

6. $6 + 3r = 12$

FIRST I WOULD MOVE THE _____. FIRST I WOULD MOVE THE _____. FIRST I WOULD MOVE THE _____.
THEN I WOULD MOVE THE _____. THEN I WOULD MOVE THE _____. THEN I WOULD MOVE THE _____.

DESCRIBE HOW YOU WOULD CHANGE EACH EQUATION TO GET THE VARIABLE ALONE.

HELPFUL EXAMPLE

$$2w + 8 = 14 \longrightarrow 2w + 8 \begin{matrix} \text{😞} \\ \text{😞} \end{matrix} \begin{matrix} \text{😞} \\ \text{🧱} \end{matrix} 14 \begin{matrix} \text{😊} \end{matrix}$$

THE 2, w, AND 8 ARE NOT HAPPY. THE 8 IS THE FARTHEST AWAY FROM THE w, SO I WOULD FIRST SUBTRACT BOTH SIDES BY 8. THEN I WOULD DIVIDE BOTH SIDES BY 2.

ANSWER: FIRST I WOULD SUBTRACT BOTH SIDES BY 8.
THEN I WOULD DIVIDE BOTH SIDES BY 2.

1. $\frac{t}{4} - 6 = 14$

2. $24 = 2x + 8$

FIRST I WOULD _____
THEN I WOULD _____

FIRST I WOULD _____
THEN I WOULD _____

3. $20 = 8f - 12$

4. $34 = 7 + \frac{k}{9}$

FIRST I WOULD _____
THEN I WOULD _____

FIRST I WOULD _____
THEN I WOULD _____

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PRACTICE D

SOLVE . $\frac{d}{5} - 3 = 4$

HELPFUL EXAMPLE


STEP 1: DRAW WALL AND FACES.

$$\frac{d}{5} - 3 = 4$$

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$$\frac{d}{5} - 3 = 4$$

☹️ ☹️ 😊



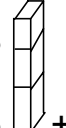

STEP 2: MOVE UNHAPPY NUMBER NOT ATTACHED TO VARIABLE.

OPPOSITE OF MINUS 3 IS PLUS 3

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$$\frac{d}{5} - 3 = 4$$

$$+ 3 \quad + 3$$

$$\frac{d}{5} - 0 = 7$$



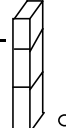

STEP 3: MOVE UNHAPPY NUMBER CLOSEST TO VARIABLE.

OPPOSITE OF DIVIDE BY 5 IS MULTIPLY BY 5.

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$$\frac{d}{5} = 7$$

$$\circ 5 \quad \circ 5$$

$$1d = 35$$



😊 $d = \underline{35}$ 😊

SOLVE EACH EQUATION.

1. $\frac{z}{3} - 12 = 3$

2. $6h - 4 = 2$

3. $33 = 4c + 5$

4. $17 = 13 + \frac{x}{4}$

5. $14 + 2m = 28$

6. $7 + \frac{y}{2} = 15$

7. $20 = 8f - 12$

8. $7 = 2 + \frac{n}{8}$

9. $59 = 15 + 4u$

10. $3 = \frac{b}{6} - 5$

11. $\frac{k}{10} + 1 = 11$

12. $7p + 11 = 46$