SOLVING ONE STEP EQUATIONS (ADD / SUBTRACT)
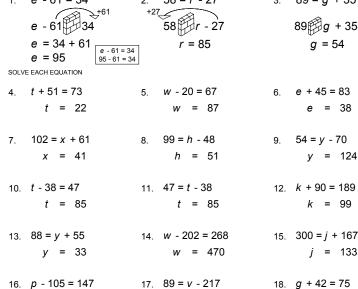## ALTERNATIVE METHOD HELP

TODAY I HAD TO SOLVE THE EQUATION
$x + 7 = 33$
THE TEACHER TOLD ME TO SEPARATE THE VARIABLE FROM THE NUMBERS. MAX, WHAT DID SHE MEAN?

WHAT YOUR TEACHER WANTS YOU TO DO IS SOLVE FOR "x", AND TO DO THAT YOU NEED TO GET "x" BY ITSELF.

SO I NEED TO GET "x" ON ONE SIDE OF THE EQUAL SIGN AND THE NUMBERS ON THE OTHER?

EXACTLY! SO WHAT I DO IS DRAW AN IMAGINARY WALL WHERE THE EQUAL SIGN IS. YOUR GOAL IS TO GET THE LETTER (VARIABLE) ON ONE SIDE OF THE WALL AND THE NUMBERS ON THE OTHER.

$$x + 7 \; | \; 33$$

KIND OF LIKE THE LETTERS AND NUMBERS DON'T LIKE EACH OTHER AND WANT TO BE ON OPPOSITE SIDES OF THE WALL...I GET IT.

PERFECT...NOW IF YOU LOOK AT THE PROBLEM THE **7** IS THE BEST NUMBER TO MOVE TO THE OPPOSITE SIDE. WHEN YOU MOVE THE PLUS SEVEN TO THE OPPOSITE SIDE IT TURNS INTO ITS OPPOSITE OPERATION WHICH WOULD BE MINUS SEVEN.

LOOK AT ME. I'M FLYING. $+7$ -7

$$x + 7 \; | \; 33$$

I'M FINALLY ALONE.

$$x \; | \; 33 - 7$$

$x + 7 = 33$
$26 + 7 = 33$

$$x = 26$$

WHEN YOU MOVE TO THE OPPOSITE SIDE ADDING TURNS INTO SUBTRACTION AND SUBTRACTION TURNS INTO ADDING. THAT'S SO SIMPLE

CHECK OUT THESE EXAMPLES BEFORE MOVING ON.

1. $y - 10 = 33$ $\quad +10$
$y - 10 \; | \; 33$
$y = 33 + 10$
$y = 43$
$\boxed{y - 10 = 33 \\ 43 - 10 = 33}$

2. $42 = p + 8$ $\quad -8$
$42 \; | \; p + 8$
$42 - 8 = p$
$34 = p$
$\boxed{42 = p + 8 \\ 42 = 34 + 8}$

SOLVING ONE STEP EQUATIONS PRACTICE - A

REMEMBER, YOU ARE TRYING TO GET THE NUMBERS AND VARIABLES ON OPPOSITE SIDES OF THE EQUAL SIGN (WALL).

I NEED TO MOVE TO GET AWAY FROM THE r.

1. $e - 61 = 34$ $\quad +61$
$e - 61 \; | \; 34$
$e = 34 + 61$
$e = 95$
$\boxed{e - 61 = 34 \\ 95 - 61 = 34}$

2. $58 = r - 27$ $\quad +27$
$58 \; | \; r - 27$
$r = 85$

3. $89 = g + 35$
$89 \; | \; g + 35$
$g = 54$

SOLVE EACH EQUATION

4. $t + 51 = 73$
$t = 22$

5. $w - 20 = 67$
$w = 87$

6. $e + 45 = 83$
$e = 38$

7. $102 = x + 61$
$x = 41$

8. $99 = h - 48$
$h = 51$

9. $54 = y - 70$
$y = 124$

10. $t - 38 = 47$
$t = 85$

11. $47 = t - 38$
$t = 85$

12. $k + 90 = 189$
$k = 99$

13. $88 = y + 55$
$y = 33$

14. $w - 202 = 268$
$w = 470$

15. $300 = j + 167$
$j = 133$

16. $p - 105 = 147$
$p = 252$

17. $89 = v - 217$
$v = 306$

18. $g + 42 = 75$
$g = 33$

19. $d + 89 = 136$
$d = 47$

20. $x - 199 = 45$
$x = 244$

21. $248 = h - 232$
$h = 480$

22. $367 = y + 255$
$y = 112$

23. $p + 339 = 482$
$p = 143$

24. $600 = r - 523$
$r = 1,123$

SOLVING ONE STEP EQUATIONS PRACTICE - B

DO YOU SEE THAT WHEN WE MOVE THE NUMBER TO THE OPPOSITE SIDE WE CHANGE THE NUMBER TO ITS OPPOSITE OPERATION?

1. $56 + p = 482$ $\quad -56$
$56 + p \; | \; 482$
$p = 482 - 56$
$p = 426$

2. $-32 + r = 68$ $\quad +32$
$-32 + r \; | \; 68$
$r = 68 + 32$
$r = 100$

THE **56** DOES NOT HAVE A SIGN. THAT MEANS IT IS POSITIVE OR PLUS. THE OPPOSITE WILL BE SUBTRACTION.

THE **32** HAS A NEGATIVE OR MINUS SIGN NEXT TO IT, WHICH MEANS THE OPPOSITE WILL BE ADDITION.

SOLVE EACH EQUATION

3. $+39 + r = 95$
$r = 56$

4. $-39 + t = 95$
$t = 134$

5. $48 = 45 + y$
$y = 3$

6. $-50 + w = 120$
$w = 170$

7. $105 = -28 + c$
$c = 133$

8. $+61 + k = 167$
$k = 106$

9. $120 = 68 + s$
$s = 52$

10. $+110 + b = 173$
$b = 63$

11. $81 = -39 + f$
$f = 120$

12. $94 = -202 + a$
$a = 296$

13. $-136 + g = 100$
$g = 236$

14. $183 = 83 + k$
$k = 100$

15. $-141 + e = 84$
$e = 225$

16. $222 + r = 292$
$r = 70$

17. $+56 + p = 137$
$p = 81$

18. $235 = 50 + y$
$y = 185$

19. $46 = -104 + x$
$x = 150$

20. $-282 + t = 60$
$t = 342$

21. $216 = -189 + w$
$w = 405$

22. $293 + n = 374$
$n = 81$

23. $556 = 401 + d$
$d = 155$

SOLVING ONE STEP EQUATIONS PRACTICE - C

THESE TWO ARE A LITTLE TRICKY. AFTER YOU MOVE THE NUMBER AWAY FROM THE VARIABLE THERE IS A NEGATIVE SIGN STILL NEXT TO THE LETTER. HAVE YOU EVER HEARD OF A NEGATIVE LETTER BEFORE?

1. $34 - d = 217$ $\quad -34$
$34 - d \; | \; 217$
$-d = 217 - 34$
$-d = 183$
MOVE THE NEGATIVE TO THE OTHER SIDE.
$-d = 183$
$d = -183$
$\boxed{34 - d = 217 \\ 34 - (-183) = 217 \\ 34 + 183 = 217 \\ 217 = 217}$

2. $64 = -81 - x$ $\quad +81$
$64 \; | \; -81 - x$
$64 + 81 = -x$
$145 = -x$
MOVE THE NEGATIVE TO THE OTHER SIDE.
$145 = -x$
$-145 = x$
$\boxed{64 = -81 - x \\ 64 = -81 - (-145) \\ 64 = -81 + 145 \\ 64 = 64}$

SOLVE EACH EQUATION

3. $47 - r = 92$
$r = -45$

4. $47 + s = 92$
$s = 45$

5. $90 = 81 - y$
$y = -9$

6. $t - 162 = 391$
$t = 553$

7. $67 = +42 + e$
$e = 25$

8. $123 - n = 138$
$n = -15$

9. $101 = a - 99$
$a = 200$

10. $-b - 256 = 64$
$b = -320$

11. $401 = 349 + d$
$d = 52$

12. $78 - y = 245$
$y = -167$

13. $573 = 202 - k$
$k = -371$

14. $g - 58 = 273$
$g = 331$

15. $741 = -h + 230$
$h = -511$

16. $-146 - x = 178$
$x = -324$

17. $318 + s = 537$
$s = 219$

18. $-318 + p = 537$
$p = 855$

19. $261 = -716 + m$
$m = 977$

20. $0 = 0 - x$
$x = 0$

ANSWERS FOR ENTIRE PACKET