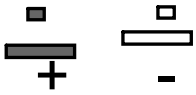
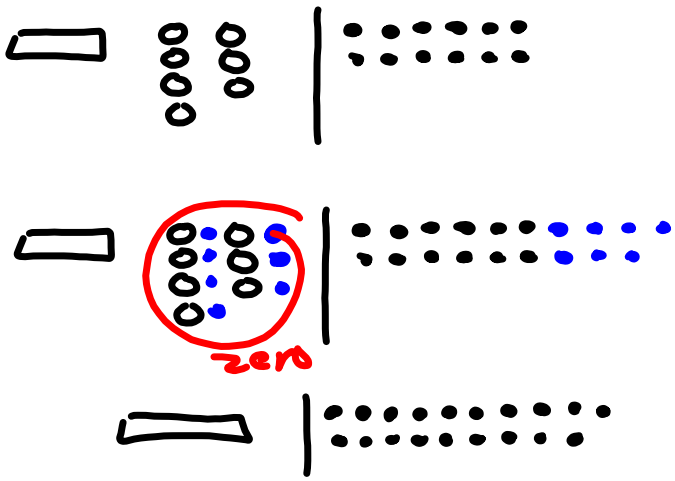
Warm Up Grade 8



Model and solve

$-x - 7 = 12$



$-x = +19$

$x = -19$

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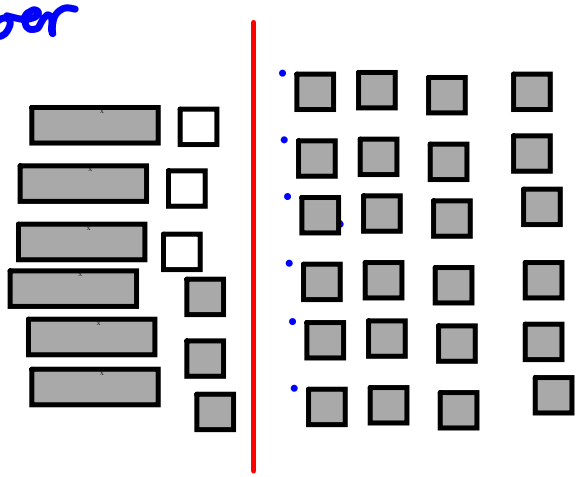
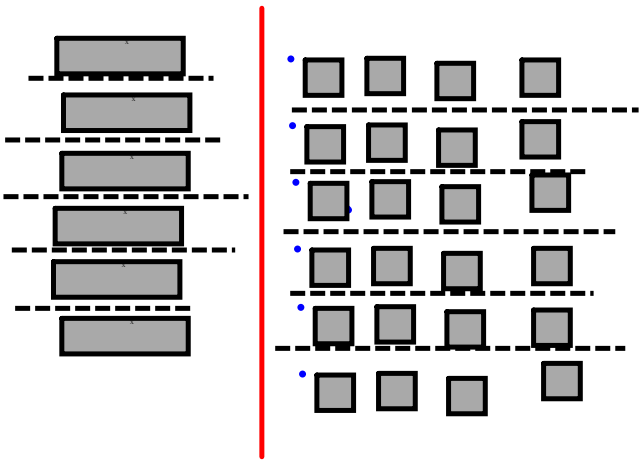
8. n = the number

$6n - 3 = 21$

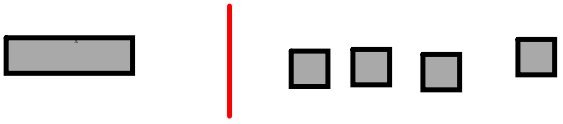
$6n - 3 + 3 = 21 + 3$



$6n = 24$



$n = 4$



LS

$6n - 3$

$6 \times 4 - 3$

$24 - 3$

21

RS

21

The number is 21.

9. n = number of cards

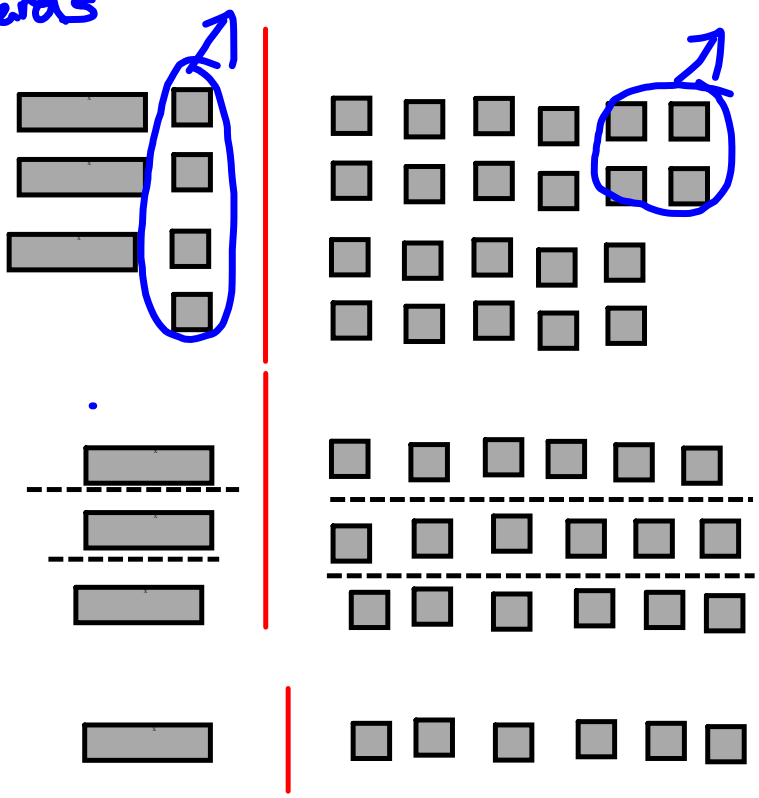
$3n+4=22$

$3n+4-4=22-4$

$3n=18$

$\frac{3n}{3}=\frac{18}{3}$

$n=6$



LS
$3n+4$
$3\times6+4$
$18+4$
22

RS
22

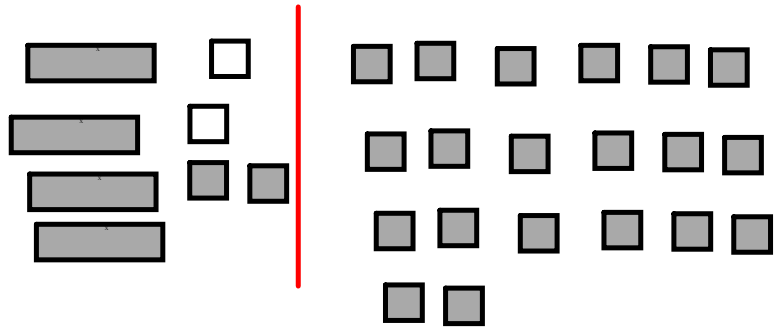
She had 6 cards in her hand

10 a) No he isn't correct, he has +2 instead of -2

(or he modeled $4x+2=18$, not $4x-2=18$)

$4x-2=18$

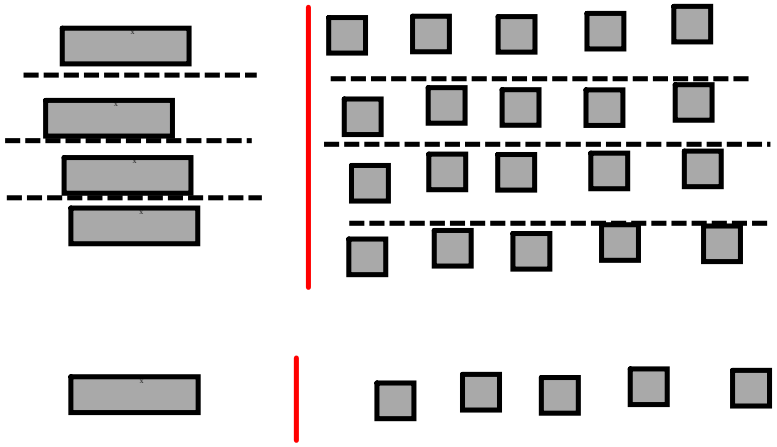
$4x-2+2=18+2$



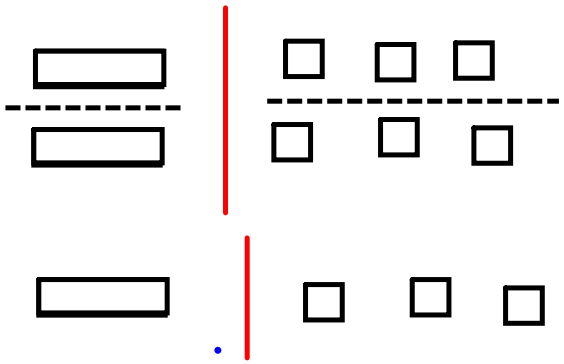
$4x=20$

$\frac{4x}{4}=\frac{20}{4}$

$x=5$



11 a) $-2x = -6$

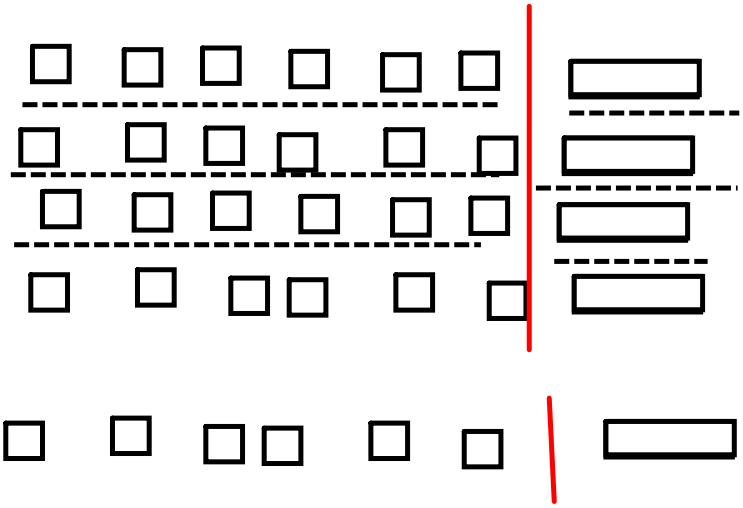


$\frac{-2x}{2} = \frac{-6}{2}$

$-x = -3$

$x = 3$

c) $-24 = -4x$



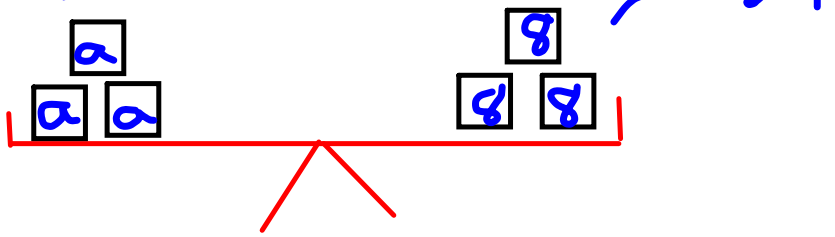
$\frac{-24}{4} = \frac{-4x}{4}$

$-6 = -x$

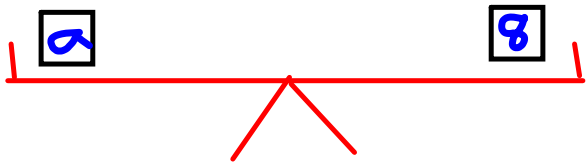
$6 = x$

D. a) On the third diagram, she has 4a instead of 3a

$3a = 24$



$a = 8$



LS
$3a + 5$
$3 \times 8 + 5$
$24 + 5$
29

RS
29

$13a - 2x + 3 = 13$

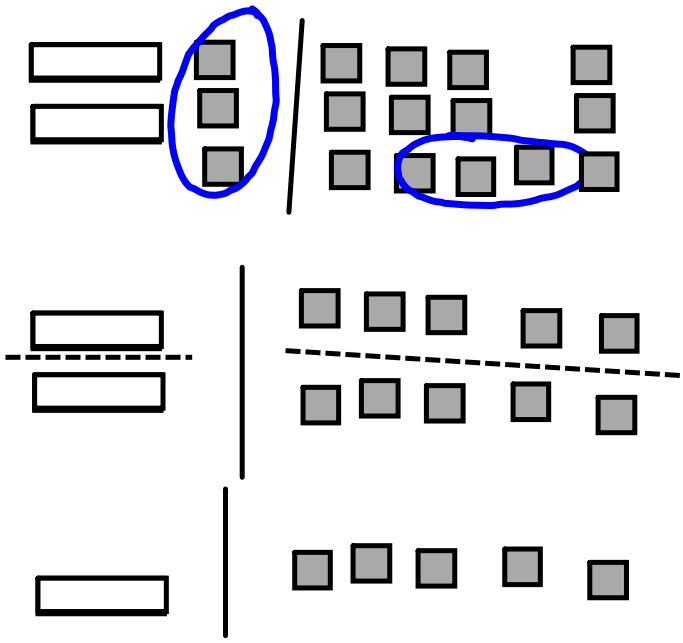
$-2x + 3 - 3 = 13 - 3$

$-2x = 10$

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

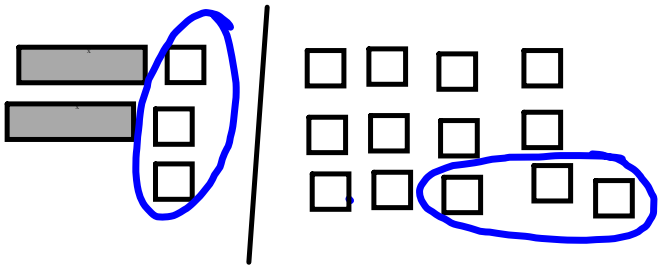
$-x = 5$

$x = -5$



c) $2x-3=-13$

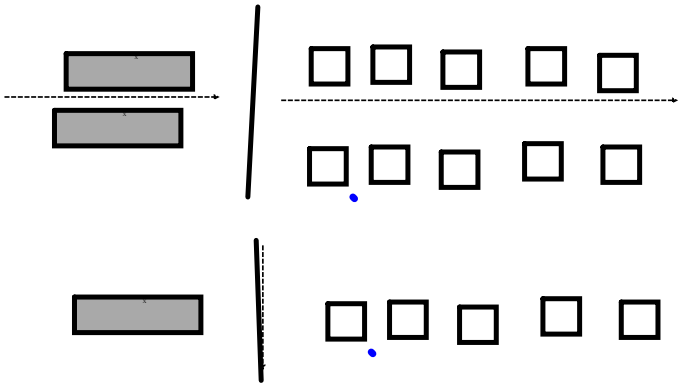
$2x-3-(-3)=-13-(-3)$



$2x=-10$

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

$x=-5$



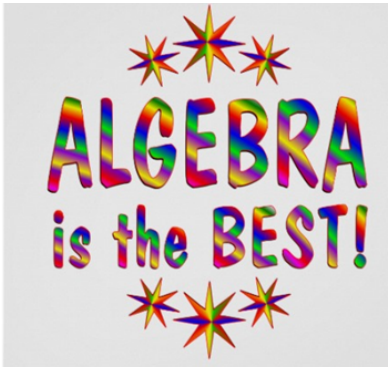
Solving Equations using Algebra

To solve an equation, we need to isolate the variable on one side of the equation.

To do this, we get rid of the numbers on that side of the equation.

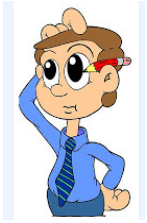
When we solve an equation using algebra, we must also preserve the equality.

Whatever we do to one side of the equation, we must do to the other side, too.



Whatever we do to one side of the equation, we must do to the other side, too.

Solve using algebra tiles then solve by using algebra



a) $2y - 1 = 7$

model

$2y - 1 = 7$

$2y - 1 + 1 = 7 + 1$ (+1 zero)

$2y = 8$

$\div 2 \quad \div 2$

$y = 4$

algebra

with algebra whatever you want to get rid of you do the opposite operation to it

Verify $y = 4$

LHS

$2y - 1$

$2(4) - 1$

$8 - 1$

7

RHS

7

Same

b) $2 + 3a = -4$

$2 - 2 + 3a = -4 - 2$

$3a = -6$

$\div 3 \quad \div 3$

$a = -2$

Getting a Fraction or a Decimal as an Answer is OK

Use algebra to solve the equation. Then verify the solution.

$16t - 69 = -13$

$16t - 69 \overset{+69}{=} -13 \overset{+69}{}$

$16t = 56$

$\div 16 \quad \div 16$

$t = 3.5$

$4x$

Brad charges $4 for each bag of garbage, and $7 cleaning gutters. On Friday, Brad cleaned 1 gutter and took out the garbage. He earned $19. How many bags of garbage did he take out?

a) Write and equation to represent this problem?
b) Solve the equation using algebra.
c) Verify the solution.

$4x + 7 = 19$

$4x + 7 - 7 = 19 - 7$

$4x = 12$

$\div 4 \quad \div 4$

$x = 3$

Brad took out 3 bags of garbage.

Class/Homework

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5 (abcd), #6 (abc), #7 (ab), #8 (ac), #9 (ac), #10

Use algebra only

You can model if you want

Answers on pg 520