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11. Note the odd rows' total is 1 and the even rows' total is 0.
The total for the 50th row is 0 since it is an even numbered row.

12. (a)

8	1	6
3	5	7
4	9	2

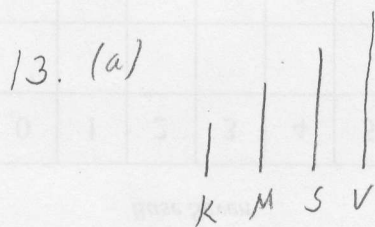
15

15

(b)

17	10	15
12	14	16
13	18	11

42



Vera is the tallest.
Kent is the shortest.

(b) (Answers will vary.)
Sample:
Kent 5ft. 4in.
Misha 5ft. 8in.
Sally 5ft. 9in.
Vern 6ft. 1in.

14. (a) $x + 7 = 9$

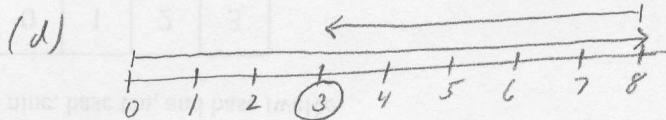
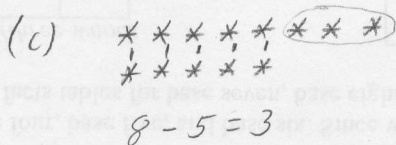
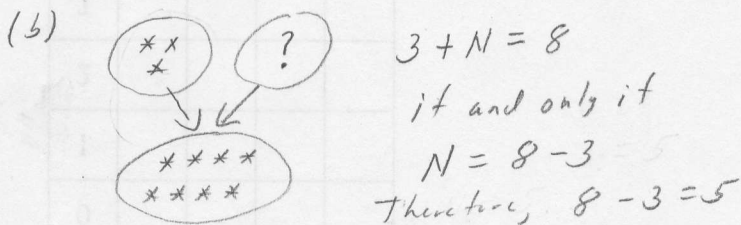
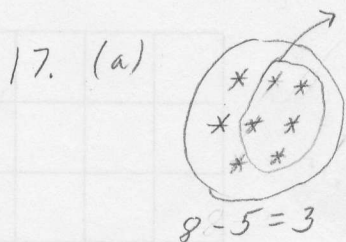
(b) $x = 3 + 6$ (c) $2 + x = 9$

15. (a) $8 + 3 = 11$
 $3 + 8 = 11$
 $11 - 8 = 3$
 $11 - 3 = 8$

(b) $13 - 8 = 5$
 $13 - 5 = 8$
 $8 + 5 = 13$
 $5 + 8 = 13$

16. (a) $a - b \geq 0$
 $a \geq b$

(b) $a - (b - c) \geq 0$
 $a \geq b - c$
 $a \geq b - c$ and $b \geq c$ if $\{a, b, c\} \subseteq \mathbb{W}$.



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#18. (a) $3 + (4+7) = (3+x) + 7$

$3 + 11 = (x+3) + 7$

$14 = x + (3+7)$

$14 = x + 10$

$x = 14 - 10$

$x = 4$

(b) $8 + 0 = x$

$x = 8 + 0$

$x = 8$

(d) $x + 8 = 12 + 5$

$x + 8 = 17$

$x = 17 - 8$

$x = 9$

(c) $5 + 8 = 8 +$

$13 = 8 + x$

$x = 13 - 8$

$x = 5$

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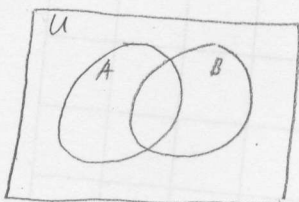
#16. Rob *****
 | | | | |
 Kelly *****

(iii) $11 - 5 = 6$

Use comparison model.

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#1.



$n(U) = 52$

$n(A) = 22$

$n(B) = 30$

$n(A \cup B) \leq n(A) + n(B) = 52$

The number of students taking algebra or biology would be less than 52 when at least one

student takes both algebra and biology, i.e.

$A \cap B \neq \emptyset$ that is $n(A \cap B) > 0$.

TIMSS

Take-away model

$50 - \square = 20$

4	11	6	21
9	7	5	
8	3	10	21
21		21	