

SOLUTIONS

INVESTIGATION 1

1. 25
2. 16
3. 40
4. 85
5. (a) -15
(b) negative fifteen
6. 0, -5, -10, -15
7. -3
8. -6
9. $-3 < 1$
10. $3 > 2$
11. $2 + 3 = 3 + 2$
12. $-4 > -5$
13. Negative one is less than zero.
14. $-2 > -3$
15. $1 > -1$
16. $4 = 2 + 2$
17. $-2 < 0$
18. $4 > 1 + 2$

LESSON 11, WARM-UP

- a. 58
- b. 57

c. 87

d. 86

e. 96

f. 95

Problem Solving

An even number of objects can be divided into two equal groups. The stacks were of equal height, which meant the number of boxes in each stack was equal.

LESSON 11, LESSON PRACTICE

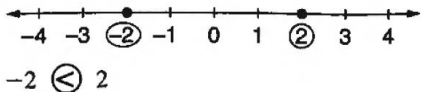
- a.
$$\begin{array}{r} 4 \text{ marigolds} \\ + N \text{ marigolds} \\ \hline 12 \text{ marigolds} \end{array}$$

 $N = 8 \text{ marigolds}$
- b.
$$\begin{array}{r} N \text{ agates} \\ + 8 \text{ agates} \\ \hline 15 \text{ agates} \end{array}$$

 $N = 7 \text{ agates}$

LESSON 11, MIXED PRACTICE

1. Pattern:
$$\begin{array}{r} \text{Some} \\ + \text{Some more} \\ \hline \text{Total} \end{array}$$

Problem:
$$\begin{array}{r} 4 \text{ horses} \\ + 13 \text{ horses} \\ \hline 17 \text{ horses} \end{array}$$
2. Pattern: Some + some more = total
Problem: 6 pages + N pages = 13 pages
 $N = 7 \text{ pages}$
3. 642
4. $-12 < 0$
5. 

LESSONS AND INVESTIGATIONS

6. 571, 573, 575, 577, 579

7. (a) 15

(b) -4

8. An even number of objects can be separated into two equal groups.

$$\begin{array}{r} 12 \\ + 6 \\ \hline 18 \\ B = 6 \end{array}$$

$$\begin{array}{r} 7 \\ + 8 \\ \hline 15 \\ N = 7 \end{array}$$

$$\begin{array}{r} 11 \\ + 1 \\ \hline 12 \\ A = 1 \end{array}$$

$$\begin{array}{r} 4 \\ + 10 \\ \hline 14 \\ M = 4 \end{array}$$

$$\begin{array}{r} 12 \\ - 3 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 14 \\ - 7 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 12 \\ - 8 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 13 \\ - 6 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 74 \\ + 18 \\ \hline 92 \end{array}$$

$$\begin{array}{r} 1 \\ 93 \\ + 39 \\ \hline 132 \end{array}$$

$$\begin{array}{r} 1 \\ 28 \\ + 45 \\ \hline 73 \end{array}$$

$$\begin{array}{r} 1 \\ 28 \\ + 47 \\ \hline 75 \end{array}$$

21. The rule is "Count down by threes."
3, 0, -3

22. The rule is "Count up by sixes."
48, 54, 60

$$\begin{array}{l} 23. \quad 5 + 9 = 14 \\ \quad \quad 9 + 5 = 14 \\ \quad \quad 14 - 5 = 9 \\ \quad \quad 14 - 9 = 5 \end{array}$$

24. $4 + 3 + 5 + 8 + 7 + 6 + 2 = 35$

$$\begin{array}{l} 25. \quad 7 + 8 + 9 = 24, \\ \quad \quad 7 + 9 + 8 = 24, \\ \quad \quad 8 + 7 + 9 = 24, \\ \quad \quad 8 + 9 + 7 = 24, \\ \quad \quad 9 + 7 + 8 = 24, \\ \quad \quad 9 + 8 + 7 = 24 \end{array}$$

$$\begin{array}{l} 26. \quad 3 + \blacktriangle = 7 \\ \quad \quad 3 + 4 = 7, \text{ so } \blacktriangle = 4 \\ \quad \quad \blacktriangle + \blacksquare = 4 + 5 = 9 \\ \quad \quad \text{D. } 9 \end{array}$$

LESSON 12, WARM-UP

a. 81

b. 72

c. 53

d. 75

e. 76

SOLUTIONS

f. 91

Patterns

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

LESSON 12, LESSON PRACTICE

a.
$$\begin{array}{r} 6 \\ + 8 \\ \hline 14 \end{array}$$
 check:
$$\begin{array}{r} 14 \\ - 8 \\ \hline 6 \end{array}$$

 $N = 8$

b.
$$\begin{array}{r} 5 \\ + 2 \\ \hline 7 \end{array}$$
 check:
$$\begin{array}{r} 7 \\ - 5 \\ \hline 2 \end{array}$$

 $N = 7$

c.
$$\begin{array}{r} 2 \\ + 7 \\ \hline 9 \end{array}$$
 check:
$$\begin{array}{r} 9 \\ - 7 \\ \hline 2 \end{array}$$

 $N = 7$

d.
$$\begin{array}{r} 5 \\ + 7 \\ \hline 12 \end{array}$$
 check:
$$\begin{array}{r} 12 \\ - 7 \\ \hline 5 \end{array}$$

 $N = 12$

LESSON 12, MIXED PRACTICE

1. Pattern: Some + some more = total
 Problem: 9 acorns + N acorns = 17 acorns
 $N = 8$ acorns

2. Pattern:
$$\begin{array}{r} \text{Some} \\ + \text{Some more} \\ \hline \text{Total} \end{array}$$

 Problem:
$$\begin{array}{r} 35 \text{ butterflies} \\ + 27 \text{ butterflies} \\ \hline 62 \text{ butterflies} \end{array}$$

3. 715

4. One hundred and four ones is 104.
One hundred four

5. 6/7/02

6. The largest three-digit number will have a 9 in the hundreds place.
946

7. 70

8.
$$\begin{array}{r} 11 \\ + 4 \\ \hline 15 \end{array}$$

 $N = 4$

9.
$$\begin{array}{r} 8 \\ + 7 \\ \hline 15 \end{array}$$

 $A = 8$

10.
$$\begin{array}{r} 9 \\ + 6 \\ \hline 15 \end{array}$$

 $N = 6$

11.
$$\begin{array}{r} 6 \\ + 9 \\ \hline 15 \end{array}$$

 $A = 9$

12.
$$\begin{array}{r} 14 \\ - 6 \\ \hline 8 \end{array}$$

 $N = 14$

13.
$$\begin{array}{r} 16 \\ - 8 \\ \hline 8 \end{array}$$

14.
$$\begin{array}{r} 14 \\ - 7 \\ \hline 7 \end{array}$$

15.
$$\begin{array}{r} 12 \\ - 5 \\ \hline 7 \end{array}$$

 $A = 5$

LESSONS AND INVESTIGATIONS

16.
$$\begin{array}{r} 12 \\ - 6 \\ \hline 6 \end{array}$$

 $B = 12$

17.
$$\begin{array}{r} 13 \\ - 5 \\ \hline 8 \end{array}$$

 $C = 5$

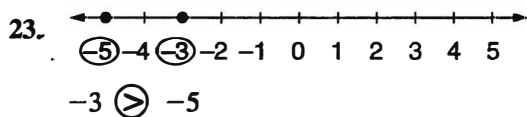
18.
$$\begin{array}{r} \$48 \\ + \$16 \\ \hline \$64 \end{array}$$

19.
$$\begin{array}{r} \$37 \\ + \$14 \\ \hline \$51 \end{array}$$

20. The rule is "Count up by sevens."
 49, 56, 63

21. The rule is "Count up by threes."
 27, 30, 33

22. 5¢, 10¢, 15¢, 20¢, 25¢, 30¢, 35¢, 40¢, 45¢



24. (a) Negative eleven
 (b) -11

25. $7 + 3 + 8 + 5 + 4 + 3 + 2 = 32$

26. B. $N - 5$

LESSON 13, WARM-UP

a. 90

b. 93

c. 55

d. 92

e. 92

f. 55

Problem Solving

Counting by 2's: 22, 24, 26, 28

Counting by 3's: 21, 24, 27

24 dominoes

LESSON 13, LESSON PRACTICE

a.
$$\begin{array}{r} \$579 \\ + \$186 \\ \hline \$765 \end{array}$$

b.
$$\begin{array}{r} 408 \\ + 243 \\ \hline 651 \end{array}$$

c.
$$\begin{array}{r} \$498 \\ + \$89 \\ \hline \$587 \end{array}$$

d.
$$\begin{array}{r} \$458 \\ + \$336 \\ \hline \$794 \end{array}$$

e.
$$\begin{array}{r} 56 \\ + 569 \\ \hline 625 \end{array}$$

LESSON 13, MIXED PRACTICE

1. Pattern:
$$\begin{array}{r} \text{Some} \\ + \text{Some more} \\ \hline \text{Total} \end{array}$$

Problem:
$$\begin{array}{r} 77 \text{ children} \\ + 19 \text{ children} \\ \hline 96 \text{ children} \end{array}$$

2. Pattern: Some + some more = total
 Problem: 5 girls + N boys = 12 children
 $N = 7$ boys

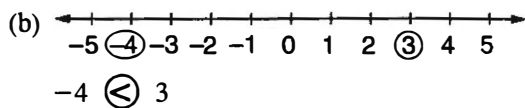
3. Nine hundred thirteen

SOLUTIONS

4. 743

5. $75 > -80$

6. (a) $413 \textcircled{>} 314$



7. $7 + 9 = 16$

$9 + 7 = 16$

$16 - 7 = 9$

$16 - 9 = 7$

8. (a) 84

(b) -5

9.
$$\begin{array}{r} ^1 \\ \$475 \\ + \$332 \\ \hline \$807 \end{array}$$

10.
$$\begin{array}{r} ^1 \\ \$714 \\ + \$226 \\ \hline \$940 \end{array}$$

11.
$$\begin{array}{r} ^{11} \\ 743 \\ + 187 \\ \hline 930 \end{array}$$

12.
$$\begin{array}{r} ^{11} \\ 576 \\ + 228 \\ \hline 804 \end{array}$$

13.
$$\begin{array}{r} 13 \\ + 4 \\ \hline 17 \\ K = 4 \end{array}$$

14.
$$\begin{array}{r} 10 \\ + 5 \\ \hline \\ N = 5 \end{array}$$

15.
$$\begin{array}{r} 15 \\ + \cdot 2 \\ \hline 17 \\ A = 2 \end{array}$$

16.
$$\begin{array}{r} 6 \\ + 10 \\ \hline 16 \\ N = 6 \end{array}$$

17.
$$\begin{array}{r} 8 \\ - 6 \\ \hline 2 \\ N = 6 \end{array}$$

18.
$$\begin{array}{r} 17 \\ - 8 \\ \hline 9 \end{array}$$

19.
$$\begin{array}{r} 13 \\ - 7 \\ \hline 6 \end{array}$$

20.
$$\begin{array}{r} 15 \\ - 8 \\ \hline 7 \\ N = 15 \end{array}$$

21.
$$\begin{array}{r} 14 \\ - 8 \\ \hline 6 \\ N = 8 \end{array}$$

22.
$$\begin{array}{r} 16 \\ - 7 \\ \hline 9 \\ A = 7 \end{array}$$

23.
$$\begin{array}{r} 16 \\ - 9 \\ \hline 7 \\ N = 16 \end{array}$$

24.
$$\begin{array}{r} ^1 \\ \$49 \\ + \$76 \\ \hline \$125 \end{array}$$

25. (a) The rule is "Count up by sevens."
49, 56, 63

(b) The rule is "Count down by fives."
0, -5, -10

26. Five tens and eight ones is 58.
C. 58

LESSONS AND INVESTIGATIONS

LESSON 14, WARM-UP

a. 700

b. 900

c. 550

d. 92

e. 73

f. 77

$$\begin{array}{r} f. \quad 36 \\ + 31 \\ \hline 67 \\ M = 36 \end{array}$$

$$\begin{array}{r} g. \quad 36 \\ + 63 \\ \hline 99 \\ W = 63 \end{array}$$

$$\begin{array}{r} h. \quad 54 \\ + 45 \\ \hline 99 \\ Y = 54 \end{array}$$

Patterns

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

All shaded squares contain even numbers.

LESSON 14, LESSON PRACTICE

$$\begin{array}{r} a. \quad \$485 \\ - \$242 \\ \hline \$243 \end{array}$$

$$\begin{array}{r} b. \quad \$56 \\ - \$33 \\ \hline \$23 \end{array}$$

$$\begin{array}{r} c. \quad 97 \\ - 53 \\ \hline 44 \end{array}$$

$$\begin{array}{r} d. \quad 54 \\ - 23 \\ \hline 31 \end{array}$$

$$\begin{array}{r} e. \quad 24 \\ + 41 \\ \hline 65 \\ Q = 41 \end{array}$$

LESSON 14, MIXED PRACTICE

$$\begin{array}{r} 1. \text{ Pattern: } \quad \text{Some} \\ + \text{ Some more} \\ \hline \text{Total} \end{array}$$

$$\begin{array}{r} \text{Problem: } \quad 42 \text{ red surfboards} \\ + 17 \text{ red surfboards} \\ \hline 59 \text{ red surfboards} \end{array}$$

$$\begin{array}{r} 2. \text{ Pattern: } \quad \text{Some} \\ + \text{ Some more} \\ \hline \text{Total} \end{array}$$

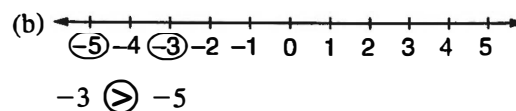
$$\begin{array}{r} \text{Problem: } \quad 4 \text{ green grasshoppers} \\ + N \text{ green grasshoppers} \\ \hline 11 \text{ green grasshoppers} \\ N = 7 \text{ green grasshoppers} \end{array}$$

3. A number less than 200 has the digit 1 in the hundreds place. A number that ends with 2 is even.
132

$$\begin{array}{l} 4. \quad 2 + 7 = 9 \\ 7 + 2 = 9 \\ 9 - 7 = 2 \\ 9 - 2 = 7 \end{array}$$

$$\begin{array}{r} 5. \quad 824 \\ - 713 \\ \hline 111 \end{array}$$

6. (a) $704 > 407$



SOLUTIONS

7. 1st month: January = 31 days
2nd month: February = 28 days

$$\begin{array}{r} 31 \text{ days} \\ + 28 \text{ days} \\ \hline 59 \text{ days} \end{array}$$

8. 45

$$\begin{array}{r} ^{11} \\ 9. \quad \$346 \\ + \$298 \\ \hline \$644 \end{array}$$

$$\begin{array}{r} ^{11} \\ 10. \quad 499 \\ + 275 \\ \hline 774 \end{array}$$

$$\begin{array}{r} ^{11} \\ 11. \quad \$421 \\ + \$389 \\ \hline \$810 \end{array}$$

$$\begin{array}{r} 12. \quad 506 \\ + 210 \\ \hline 716 \end{array}$$

$$\begin{array}{r} 13. \quad \$438 \\ - \$206 \\ \hline \$232 \end{array}$$

$$\begin{array}{r} 14. \quad 17 \\ - 8 \\ \hline 9 \\ A = 8 \end{array}$$

$$\begin{array}{r} 15. \quad 7 \\ + 7 \\ \hline 14 \\ B = 7 \end{array}$$

$$\begin{array}{r} 16. \quad 5 \\ - 3 \\ \hline 2 \\ C = 3 \end{array}$$

$$\begin{array}{r} 17. \quad 8 \\ + 7 \\ \hline 15 \\ D = 7 \end{array}$$

$$\begin{array}{r} 18. \quad 15 \\ - 6 \\ \hline 9 \\ K = 6 \end{array}$$

$$\begin{array}{r} 19. \quad 5 \\ + 8 \\ \hline 13 \\ N = 8 \end{array}$$

$$\begin{array}{r} 20. \quad 476 \\ - 252 \\ \hline 224 \end{array}$$

$$\begin{array}{r} 21. \quad 47 \\ - 16 \\ \hline 31 \end{array}$$

$$\begin{array}{r} 22. \quad 28 \\ - 13 \\ \hline 15 \end{array}$$

$$\begin{array}{r} 23. \quad 75 \\ + 12 \\ \hline 87 \\ T = 12 \end{array}$$

$$\begin{array}{r} 24. \quad 24 \\ + 43 \\ \hline 67 \\ E = 43 \end{array}$$

25. (a) The rule is "Count down by nines."
54, 45, 36

- (b) The rule is "Count down by fours."
0, -4, -8

26. $\square - 7 = 2$
 $9 - 7 = 2$, so $\square = 9$
 $7 - 9 \neq 2$, so $7 - \square = 2$ is not true
A. $7 - \square = 2$

LESSON 15, WARM-UP

a. 900

b. 920

c. 354

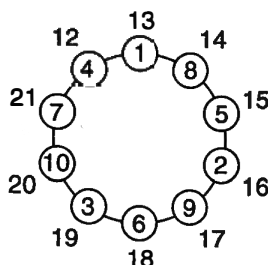
LESSONS AND INVESTIGATIONS

d. 93

e. 64

f. 46

Patterns



LESSON 15, LESSON PRACTICE

- a. See lesson for model of how to illustrate the subtraction.

$$\begin{array}{r} \$53 \\ - \$29 \\ \hline \$24 \end{array}$$

- b. See lesson for model of how to illustrate the subtraction.

$$\begin{array}{r} \$56 \\ - \$27 \\ \hline \$29 \end{array}$$

- c. See lesson for model of how to illustrate the subtraction.

$$\begin{array}{r} \$42 \\ - \$24 \\ \hline \$18 \end{array}$$

- d. See lesson for model of how to illustrate the subtraction.

$$\begin{array}{r} \$60 \\ - \$27 \\ \hline \$33 \end{array}$$

e.

$$\begin{array}{r} 5 \\ 613 \\ - 36 \\ \hline 27 \end{array}$$

f.

$$\begin{array}{r} 3 \\ 410 \\ - 13 \\ \hline 27 \end{array}$$

g.

$$\begin{array}{r} 6 \\ 712 \\ - 24 \\ \hline 48 \end{array}$$

h.

$$\begin{array}{r} 1 \\ 214 \\ - 18 \\ \hline 6 \end{array}$$

LESSON 15, MIXED PRACTICE

1. Pattern: Some
 + Some more
 Total

Problem: 618 acorns
 + 117 acorns
 735 acorns

2.

$$\begin{array}{r} 76 \text{ knights} \\ - 16 \text{ knights} \\ \hline 60 \text{ knights} \end{array}$$

3. Three hundreds are less than four hundreds, so 3 is in the hundreds place. An even number may end in 6.
376

4. Six hundred five

5. 10

6. (a) $75 > 57$
(b) $5 + 7 = 12$ and $4 + 8 = 12$
 $12 = 12$
 $5 + 7 = 4 + 8$

7.

$$\begin{array}{r} 375 \\ - 245 \\ \hline 130 \end{array}$$

8. 34

9.

$$\begin{array}{r} 11 \\ \$426 \\ + \$298 \\ \hline \$724 \end{array}$$

10.

$$\begin{array}{r} 11 \\ \$278 \\ + \$456 \\ \hline \$734 \end{array}$$

SOLUTIONS

$$\begin{array}{r} 11 \\ 721 \\ + 189 \\ \hline 910 \end{array}$$

$$\begin{array}{r} 11 \\ 409 \\ + 198 \\ \hline 607 \end{array}$$

$$\begin{array}{r} 5 \\ + 7 \\ \hline 12 \\ D = 5 \end{array}$$

$$\begin{array}{r} 18 \\ - 9 \\ \hline 9 \\ A = 9 \end{array}$$

$$\begin{array}{r} 38 \\ + 21 \\ \hline 59 \\ B = 21 \end{array}$$

$$\begin{array}{r} 5 \\ - 4 \\ \hline 1 \\ C = 5 \end{array}$$

$$\begin{array}{r} \$456 \\ - \$120 \\ \hline \$336 \end{array}$$

$$\begin{array}{r} \$3^{14} \\ - \$2^7 \\ \hline \$2^7 \end{array}$$

$$\begin{array}{r} 3 \\ 4^{16} \\ - 28 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ 3^{15} \\ - 16 \\ \hline 19 \end{array}$$

$$\begin{array}{l} 21. \text{ November} = 30 \text{ days} \\ \text{December} = 31 \text{ days} \\ \hline 30 \text{ days} \\ + 31 \text{ days} \\ \hline 61 \text{ days} \end{array}$$

$$\begin{array}{l} 22. \quad 5 + 6 = 11 \\ \quad 6 + 5 = 11 \\ \quad 11 - 6 = 5 \\ \quad 11 - 5 = 6 \end{array}$$

$$23. \quad 3 + 6 + 7 + 5 + 4 + 8 = 33.$$

$$24. \quad \text{The rule is "Count down by nines."}$$

45, 36, 27

$$25. \quad \text{The rule is "Count down by sevens."}$$

-28, -35, -42

$$26. \quad 6 + \Delta = 10$$

$$6 + 4 = 10, \text{ so } \Delta = 4$$

B. 4

LESSON 16, WARM-UP

a. 90

b. 900

c. 9

d. 55

e. 66

f. 73

Patterns

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

10, 20, 30, 40, 50, 60, 70, 80, 90, 100

LESSONS AND INVESTIGATIONS

LESSON 16, LESSON PRACTICE

a. $80 + 6$

b. $300 + 20 + 5$

c. $500 + 7$

d.
$$\begin{array}{r} 36 \\ - 15 \\ \hline 21 \\ P = 15 \end{array}$$

e.
$$\begin{array}{r} 47 \\ - 23 \\ \hline 24 \\ Q = 23 \end{array}$$

f.
$$\begin{array}{r} 38 \\ - 22 \\ \hline 16 \\ M = 38 \end{array}$$

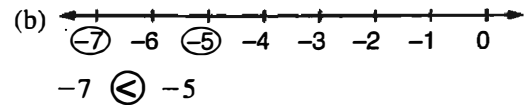
g.
$$\begin{array}{r} 75 \\ - 32 \\ \hline 43 \\ W = 75 \end{array}$$

h.
$$\begin{array}{r} 43 \\ - 11 \\ \hline 32 \\ X = 11 \end{array}$$

4. $700 + 80 + 2$

5. The smallest three-digit number is 100.
The number 100 is even.
100

6. (a) $918 \text{ } \textcircled{>} \text{ } 819$



7. There are 7 days in one week. Count by sevens
six times: 7, 14, 21, 28, 36, 42.
42 days

8. **475**

9.
$$\begin{array}{r} 11 \\ \$576 \\ + \$128 \\ \hline \$704 \end{array}$$

10.
$$\begin{array}{r} 11 \\ \$243 \\ + \$578 \\ \hline \$821 \end{array}$$

11.
$$\begin{array}{r} 11 \\ 186 \\ + 285 \\ \hline 471 \end{array}$$

12.
$$\begin{array}{r} 11 \\ 329 \\ + 186 \\ \hline 515 \end{array}$$

13.
$$\begin{array}{r} 5 \\ + 12 \\ \hline 17 \\ D = 5 \end{array}$$

14.
$$\begin{array}{r} 17 \\ - 8 \\ \hline 9 \\ A = 8 \end{array}$$

15.
$$\begin{array}{r} 8 \\ + 6 \\ \hline 14 \\ B = 6 \end{array}$$

LESSON 16, MIXED PRACTICE

1.
$$\begin{array}{r} 23 \text{ horses} \\ + 66 \text{ horses} \\ \hline 89 \text{ horses} \end{array}$$

2. Pattern:
$$\begin{array}{r} \text{Some} \\ + \text{Some more} \\ \hline \text{Total} \end{array}$$

Problem:
$$\begin{array}{r} 375 \text{ bats} \\ + 107 \text{ bats} \\ \hline 482 \text{ bats} \end{array}$$

3. $22 + 33 = 55$
 $33 + 22 = 55$
 $55 - 22 = 33$
 $55 - 33 = 22$

SOLUTIONS

$$\begin{array}{r} 16. \quad 9 \\ - 7 \\ \hline 2 \\ C = 9 \end{array}$$

$$\begin{array}{r} 17. \quad 215 \\ - 19 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 18. \quad 342 \\ - 28 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 19. \quad 346 \\ - 18 \\ \hline 28 \end{array}$$

$$\begin{array}{r} 20. \quad 342 \\ - 16 \\ \hline 26 \end{array}$$

$$\begin{array}{r} 21. \quad 68 \\ - 34 \\ \hline 34 \\ D = 34 \end{array}$$

$$\begin{array}{r} 22. \quad 49 \\ - 34 \\ \hline 15 \\ B = 49 \end{array}$$

$$\begin{array}{r} 23. \quad 62 \\ - 41 \\ \hline 21 \\ H = 41 \end{array}$$

$$\begin{array}{r} 24. \quad 78 \\ - 46 \\ \hline 32 \\ L = 78 \end{array}$$

25. (a) The rule is "Count up by fours."
28, 32, 36
- (b) The rule is "Count down by fours."
4, 0, -4

26. $N - 3 = 6$
 $9 - 3 = 6$, so $N = 9$
 $6 - 3 \neq 9$, so $6 - 3 = N$ is not true
C. $6 - 3 = N$

LESSON 17, WARM-UP

a. 900

b. 540

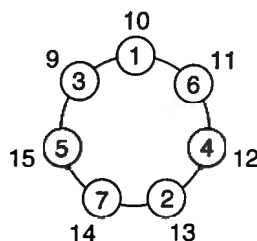
c. 65

d. 84

e. 95

f. 73

Patterns



The pattern inside the circles is "1, skip, skip, 2, etc." Outside the circles the numbers count up by one from 9 to 15, starting at the upper left.

LESSON 17, LESSON PRACTICE

$$\begin{array}{r} a. \quad 2 \\ 47 \\ 29 \\ 46 \\ + 95 \\ \hline 217 \end{array}$$

$$\begin{array}{r} b. \quad 2 \\ 28 \\ 47 \\ + 65 \\ \hline 140 \end{array}$$

$$\begin{array}{r} c. \quad 1 \\ 38 \\ 22 \\ 31 \\ + 46 \\ \hline 137 \end{array}$$

LESSONS AND INVESTIGATIONS

$$\begin{array}{r} \text{d.} \quad \overset{11}{438} \\ \quad \quad 76 \\ + \quad \quad 5 \\ \hline \quad \quad 519 \end{array}$$

$$\begin{array}{r} \text{e.} \quad \overset{2}{15} \\ \quad \quad 24 \\ \quad \quad 11 \\ \quad \quad 25 \\ + \quad 36 \\ \hline \quad 111 \end{array}$$

$$\begin{array}{r} \text{9.} \quad \overset{11}{\$378} \\ \quad + \quad \overset{11}{\$496} \\ \hline \quad \quad \overset{11}{\$874} \end{array}$$

$$\begin{array}{r} \text{10.} \quad \overset{1}{109} \\ \quad + \quad 486 \\ \hline \quad \quad 595 \end{array}$$

$$\begin{array}{r} \text{11.} \quad \overset{3}{14} \\ \quad \quad 28 \\ \quad \quad 35 \\ \quad \quad \overset{16}{16} \\ + \quad \overset{1}{227} \\ \hline \quad \quad 320 \end{array}$$

LESSON 17, MIXED PRACTICE

$$\begin{array}{r} \text{1. Pattern:} \quad \text{Some} \\ \quad + \quad \text{Some more} \\ \hline \quad \quad \text{Total} \end{array}$$

$$\begin{array}{r} \text{Problem:} \quad 24 \text{ stitches} \\ \quad + \quad N \text{ stitches} \\ \hline \quad \quad 75 \text{ stitches} \\ N = \mathbf{51 \text{ stitches}} \end{array}$$

$$\begin{array}{r} \text{2. Pattern:} \quad \text{Some} \\ \quad + \quad \text{Some more} \\ \hline \quad \quad \text{Total} \end{array}$$

$$\begin{array}{r} \text{Problem:} \quad 407 \text{ roses} \\ \quad + \quad 362 \text{ roses} \\ \hline \quad \quad \mathbf{769 \text{ roses}} \end{array}$$

3. Two hundreds are less than three hundreds, so 2 is in the hundreds place. An even number may end in 8.
298

4. $800 + 10 + 3$; eight hundred thirteen

5. The smallest two-digit number is 10.
The smallest two-digit odd number is 11.

6. **-30**

$$\begin{array}{r} \text{7.} \quad \overset{11}{294} \\ \quad \quad 312 \\ + \quad \quad 5 \\ \hline \quad \quad 611 \end{array}$$

$$\begin{array}{r} \text{8.} \quad \overset{11}{\$189} \\ \quad + \quad \overset{11}{\$298} \\ \hline \quad \quad \mathbf{\$487} \end{array}$$

$$\begin{array}{r} \text{12.} \quad 14 \\ \quad - \quad 7 \\ \hline \quad \quad 7 \end{array}$$

$$A = 7$$

$$\begin{array}{r} \text{13.} \quad 8 \\ \quad + \quad 6 \\ \hline \quad \quad 14 \end{array}$$

$$B = 6$$

$$\begin{array}{r} \text{14.} \quad 18 \\ \quad - \quad 13 \\ \hline \quad \quad 5 \end{array}$$

$$C = 18$$

$$\begin{array}{r} \text{15.} \quad 11 \\ \quad - \quad 2 \\ \hline \quad \quad 9 \end{array}$$

$$D = 2$$

$$\begin{array}{r} \text{16.} \quad 13 \\ \quad - \quad 5 \\ \hline \quad \quad 8 \end{array}$$

$$E = 13$$

$$\begin{array}{r} \text{17.} \quad \overset{2}{\cancel{2}}18 \\ \quad - \quad 29 \\ \hline \quad \quad 9 \end{array}$$

$$\begin{array}{r} \text{18.} \quad \overset{4}{\cancel{2}}17 \\ \quad - \quad 38 \\ \hline \quad \quad 19 \end{array}$$

SOLUTIONS

$$\begin{array}{r} 19. \quad 34 \\ + 52 \\ \hline 86 \\ B = 52 \end{array}$$

$$\begin{array}{r} 20. \quad 48 \\ - 23 \\ \hline 25 \\ C = 23 \end{array}$$

$$\begin{array}{r} 21. \quad 58 \\ - 46 \\ \hline 12 \\ D = 58 \end{array}$$

$$\begin{array}{r} 22. \quad 39 \\ - 15 \\ \hline 24 \\ Y = 39 \end{array}$$

23. The rule is "Count down by fours."
36, 32, 28

24. The rule is "Count up by threes."
21, 24, 27

$$\begin{array}{l} 25. \quad 6 + 9 = 15 \\ \quad 9 + 6 = 15 \\ \quad 15 - 6 = 9 \\ \quad 15 - 9 = 6 \end{array}$$

$$\begin{array}{l} 26. \quad 6 + 4 = 10 \\ \quad 6 - 4 = 2 \\ \quad C. \quad 6 \text{ and } 4 \end{array}$$

LESSON 18, WARM-UP

- a. 650
- b. 75
- c. 94
- d. 83
- e. 66
- f. 627

Patterns

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

LESSON 18, LESSON PRACTICE

- a. Count up by twos from 90: 90, 92, 94, 96, 98.
98°F
- b. Count up by twos from 0: 0, 2, 4, 6, 8.
8°C
- c. Count up by fives from 40: 40, 45
45 mph

LESSON 18, MIXED PRACTICE

- 1.
$$\begin{array}{r} 21 \text{ seconds} \\ + 37 \text{ seconds} \\ \hline 58 \text{ seconds} \end{array}$$
- 2. Pattern:
$$\begin{array}{r} \text{Some} \\ + \text{Some more} \\ \hline \text{Total} \end{array}$$

Problem:
$$\begin{array}{r} 297 \text{ boys} \\ + 315 \text{ girls} \\ \hline 612 \text{ children} \end{array}$$

$$297 + 315 = 612$$

$$\begin{array}{l} 3. \quad 8 + 9 = 17 \\ \quad 9 + 8 = 17 \\ \quad 17 - 9 = 8 \\ \quad 17 - 8 = 9 \end{array}$$

4. 249

- 5. Count up by fours to the eighth number:
4, 8, 12, 16, 20, 24, 28, 32.

LESSONS AND INVESTIGATIONS

6. 475

$$\begin{array}{r} ^{11} \\ 7. \quad \$392 \\ + \$278 \\ \hline \$670 \end{array}$$

$$\begin{array}{r} ^1 \\ 8. \quad \$439 \\ + \$339 \\ \hline \$778 \end{array}$$

$$\begin{array}{r} ^1 \\ 9. \quad 774 \\ + 174 \\ \hline 948 \end{array}$$

$$\begin{array}{r} ^{11} \\ 10. \quad 389 \\ + 398 \\ \hline 787 \end{array}$$

$$\begin{array}{r} ^2 \\ 11. \quad 13 \\ 25 \\ 46 \\ 25 \\ + 29 \\ \hline 138 \end{array}$$

$$\begin{array}{r} 12. \quad 18 \\ - 6 \\ \hline 12 \\ A = 6 \end{array}$$

$$\begin{array}{r} 13. \quad 8 \\ + 8 \\ \hline 16 \\ B = 8 \end{array}$$

$$\begin{array}{r} 14. \quad 8 \\ - 5 \\ \hline 3 \\ C = 8 \end{array}$$

$$\begin{array}{r} ^5 \\ 15. \quad 8^{12} \\ - 48 \\ \hline 14 \end{array}$$

$$\begin{array}{r} ^7 \\ 16. \quad 8^{12} \\ - 58 \\ \hline 24 \end{array}$$

$$\begin{array}{r} ^2 \\ 17. \quad 28 \\ 36 \\ 57 \\ + 47 \\ \hline 168 \end{array}$$

$$\begin{array}{r} 18. \quad 35 \\ - 21 \\ \hline 14 \\ Y = 21 \end{array}$$

$$\begin{array}{r} 19. \quad 45 \\ + 10 \\ \hline 55 \\ P = 10 \end{array}$$

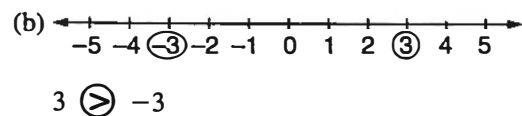
$$\begin{array}{r} 20. \quad 75 \\ - 33 \\ \hline 42 \\ L = 33 \end{array}$$

$$\begin{array}{r} 21. \quad 78 \\ - 47 \\ \hline 31 \\ C = 78 \end{array}$$

$$\begin{array}{r} 22. \quad 22 \\ + 15 \\ \hline 37 \\ E = 22 \end{array}$$

23. $400 + 90 + 8$

24. (a) $423 \leq 432$



25. (a) Count up by twos from 50: 50, 52, 54, 56.
 56°F

(b) Count up by twos from -10: -10, -8, -6.
 -6°C

26. 903 and 309 are odd numbers. 903 is greater than 750.
C. 903

SOLUTIONS

LESSON 19, WARM-UP

- a. 127
- b. 263
- c. 348
- d. 245
- e. 164
- f. 377
- g. 8; 5; 4; 7; 9

Problem Solving

$$\begin{array}{r} 3N = 15\text{¢} \\ + 1D = 10\text{¢} \\ \hline 25\text{¢} \end{array}$$

3 nickels and 1 dime

LESSON 19, LESSON PRACTICE

- a. Hour: 8
Minute: 5, 10, 15, 20, 25, 30
8:30 a.m.
- b. Hour: 7
Minute: 5, 10, 11, 12
7:12 a.m.
- c. Hour: 10
Minute: 5, 10, 15, 20, 25, 30, 35, 40
10:40 a.m.
- d. 8:50 p.m.
- e. 24 hours
- f. 60 minutes
- g. 60 seconds

LESSON 19, MIXED PRACTICE

- 1.
$$\begin{array}{r} 51 \text{ pencils} \\ + 25 \text{ pencils} \\ \hline 76 \text{ pencils} \end{array}$$
- 2.
$$\begin{array}{r} 12 \text{ boys} \\ + 15 \text{ girls} \\ \hline 27 \text{ children} \end{array}$$
- 3.
$$\begin{array}{l} B + A = 9 \\ 9 - A = B \\ 9 - B = A \end{array}$$
- 4. $900 + 5$; nine hundred five
- 5. $120 > 112$
- 6. Hour: 4
Minute: 5, 10, 15, 20, 25, 30
4:30 p.m.
- 7. 0°C
- 8.
$$\begin{array}{r} ^{11} \\ \$468 \\ + \$293 \\ \hline \$761 \end{array}$$
- 9.
$$\begin{array}{r} ^{11} \\ 468 \\ + 185 \\ \hline 653 \end{array}$$
- 10.
$$\begin{array}{r} ^{11} \\ \$187 \\ + \$698 \\ \hline \$885 \end{array}$$
- 11.
$$\begin{array}{r} 14 \\ - 7 \\ \hline 7 \\ A = 7 \end{array}$$
- 12.
$$\begin{array}{r} 8 \\ + 8 \\ \hline 16 \\ B = 8 \end{array}$$

LESSONS AND INVESTIGATIONS

$$\begin{array}{r} 13. \quad 15 \\ - 8 \\ \hline 7 \\ C = 15 \end{array}$$

$$\begin{array}{r} 14. \quad 14 \\ - 5 \\ \hline 9 \\ D = 5 \end{array}$$

$$\begin{array}{r} 15. \quad \overset{6}{7}14 \\ - 58 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 16. \quad \overset{3}{\$4}14 \\ - \$28 \\ \hline \$16 \end{array}$$

$$\begin{array}{r} 17. \quad \overset{1}{2}13 \\ - 18 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 18. \quad \overset{5}{\$6}12 \\ - \$43 \\ \hline \$19 \end{array}$$

$$\begin{array}{r} 19. \quad \overset{2}{25} \\ 28 \\ 46 \\ + 88 \\ \hline 187 \end{array}$$

$$\begin{array}{r} 20. \quad 45 \\ - 24 \\ \hline 21 \\ P = 24 \end{array}$$

$$\begin{array}{r} 21. \quad 13 \\ + 24 \\ \hline 37 \\ B = 24 \end{array}$$

$$\begin{array}{r} 22. \quad 77 \\ - 45 \\ \hline 32 \\ F = 77 \end{array}$$

23. 4 quarters = 1 dollar
Count up by fours: 4, 8, 12, 16.
16 quarters

24. $3 + 6 = 9$ (or $6 + 3 = 9$)

25. (a) The rule is "Count up by eights."
32, 40, 48

(b) The rule is "Count down by twos."
2, 0, -2

26. $9 - \Delta = 4$
 $9 - 5 = 4$, so $\Delta = 5$
 $5 - 4 \neq 9$, so $\Delta - 4 = 9$ is not true
B. $\Delta - 4 = 9$

LESSON 20, WARM-UP

a. 456

b. 354

c. 83

d. 244

e. 267

f. 477

g. 1; 3; 5; 6; 2

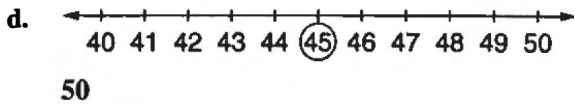
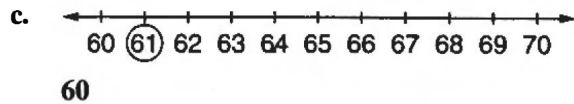
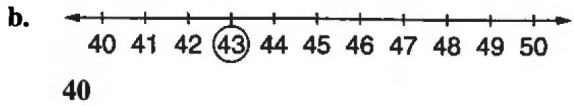
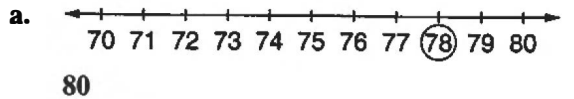
Patterns

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Multiples of 5: 5, 10, 15, 20, 25, 30, 35, 40, 45,
50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100
30, 60, 90

SOLUTIONS

LESSON 20, LESSON PRACTICE



e. 29 cents is less than 50. Round down to **\$14**.

f. 95 cents is more than 50. Round up to **\$9**.

g. 45 cents is less than 50. Round down to **\$21**.

h. 89 cents is more than 50. Round up to **\$30**.

LESSON 20, MIXED PRACTICE

1. Pattern: Some
 + Some more
 Total

Problem: N eggs
 + 21 eggs
 72 eggs
 $N = 51$ eggs

2. Pattern: Some
 + Some more
 Total

Problem: $\overset{11}{476}$ children
 + 397 children
 873 children

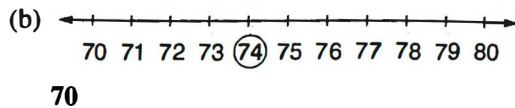
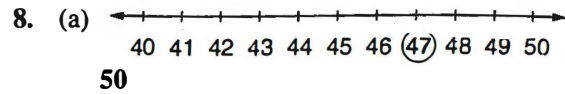
3. 665

4. $500 + 9$; five hundred nine

5. $-20 < 10$

6. Count up by ones from 30°F : 30, 31, 32.
 32°F ; 0°C

7. Hour: 4
Minute: 5, 10, 15
4:15 p.m.



$$\begin{array}{r} \overset{11}{\$476} \\ + \$285 \\ \hline \$761 \end{array}$$

$$\begin{array}{r} \overset{11}{\$185} \\ + \$499 \\ \hline \$684 \end{array}$$

$$\begin{array}{r} \overset{11}{568} \\ + 397 \\ \hline 965 \end{array}$$

$$\begin{array}{r} \overset{11}{478} \\ + 196 \\ \hline 674 \end{array}$$

$$\begin{array}{r} 17 \\ - 8 \\ \hline 9 \\ A = 8 \end{array}$$

$$\begin{array}{r} 14 \\ - 0 \\ \hline 14 \\ B = 0 \end{array}$$

$$\begin{array}{r} 13 \\ - 7 \\ \hline 6 \\ C = 7 \end{array}$$

$$\begin{array}{r} \overset{2}{\$315} \\ - \$28 \\ \hline \$7 \end{array}$$

LESSONS AND INVESTIGATIONS

INVESTIGATION 2

$$\begin{array}{r} 17. \quad 2\overset{1}{3} \\ - 1\overset{5}{5} \\ \hline 8 \end{array}$$

$$\begin{array}{r} 18. \quad 6\overset{5}{3} \\ - 3\overset{6}{6} \\ \hline 2\overset{7}{7} \end{array}$$

$$\begin{array}{r} 19. \quad 7\overset{6}{4} \\ - 5\overset{9}{9} \\ \hline 1\overset{5}{5} \end{array}$$

$$\begin{array}{r} 20. \quad 23 \\ + 22 \\ \hline 45 \\ M = 23 \end{array}$$

$$\begin{array}{r} 21. \quad 47 \\ - 15 \\ \hline 32 \\ K = 47 \end{array}$$

$$\begin{array}{r} 22. \quad 47 \\ - 13 \\ \hline 34 \\ K = 13 \end{array}$$

$$\begin{array}{r} 23. \quad 28 \\ 36 \\ 44 \\ + 58 \\ \hline 166 \end{array}$$

$$\begin{array}{r} 24. \quad 49 \\ 28 \\ 32 \\ + 55 \\ \hline 164 \end{array}$$

25. (a) 67 cents is more than 50. Round up to **\$26**.
(b) 42 cents is less than 50. Round down to **\$14**.

26. 3 tens, 7 ones = 37
7 tens, 3 ones = 73

$$\begin{array}{r} 37 \\ + 73 \\ \hline 110 \end{array}$$

C. $37 + 73 = 110$

1. Jones

2. Answers vary.

3. 100 cm

4. inch

5. 30 cm

6. probably about 11 in.

7. probably about 28 cm

8. (a) 4 in.

(b) 10 cm

9. (a) 6 in..

(b) between 15 cm and 16 cm

10. about 1000 big steps

11. mile

12. 1000 mm

13. (a) 2 in.

(b) 5 cm

(c) 50 mm

14. (a) 3 cm

(b) 2 cm

15. $3 \text{ cm} + 2 \text{ cm} + 3 \text{ cm} + 2 \text{ cm} = 10 \text{ cm}$

16. $80 \text{ yd} + 40 \text{ yd} + 80 \text{ yd} + 40 \text{ yd} = 240 \text{ yd}$

17. $2 \text{ cm} + 2 \text{ cm} + 2 \text{ cm} + 2 \text{ cm} = 8 \text{ cm}$

18. $10 \text{ in.} + 10 \text{ in.} + 10 \text{ in.} + 10 \text{ in.} = 40 \text{ in.}$

19. $3 \text{ cm} + 4 \text{ cm} + 5 \text{ cm} = 12 \text{ cm}$

SOLUTIONS

20. (a) 3 ft
(b) 2 ft
(c) $3 \text{ ft} + 2 \text{ ft} + 3 \text{ ft} + 2 \text{ ft} = 10 \text{ ft}$

21. wire fence

22. wooden frame

23. Answers vary.

LESSON 21, WARM-UP

- a. 76
b. 77
c. 76
d. 175
e. 289
f. 185
g. 3; 8; 1; 5; 4

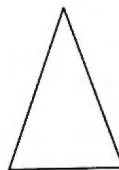
Patterns

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

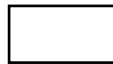
Only numbers that end in 5 or 0 are multiples of 5. Numbers ending in 5 are not even, so the only shaded number that is even and a multiple of 5 is 70.

LESSON 21, LESSON PRACTICE

a. Sample answer:



b. Proportions should be similar to this figure:



d. The diameter of a circle equals two radii.
 $3 \text{ cm} + 3 \text{ cm} = 6 \text{ cm}$

e. Square

LESSON 21, MIXED PRACTICE

1. Pattern: $\begin{array}{r} \text{Some} \\ + \text{Some more} \\ \hline \text{Total} \end{array}$
Problem: $\begin{array}{r} 417 \text{ marbles} \\ + 222 \text{ marbles} \\ \hline 639 \text{ marbles} \end{array}$

2. Pattern: $\begin{array}{r} \text{Some} \\ + \text{Some more} \\ \hline \text{Total} \end{array}$
Problem: $\begin{array}{r} 40 \text{ jacks} \\ + N \text{ jacks} \\ \hline 72 \text{ jacks} \end{array}$
 $N = 32 \text{ jacks}$

3. 645

4. $700 + 50 + 3$

5. $y + x = 10$
 $10 - x = y$
 $10 - y = x$

6. Count up by fifties from 200: 200, 250, 300, 350.