

Math 303

p. 265

#1. (a) -2 (b) $-(-5) = 5$ (c) $-m$ (d) 0 (e) $-(-m) = m$ (f) $-(a+b) = -a-b$

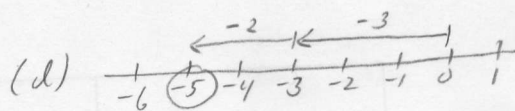
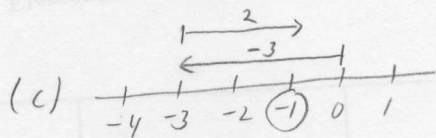
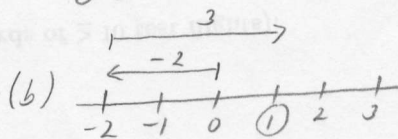
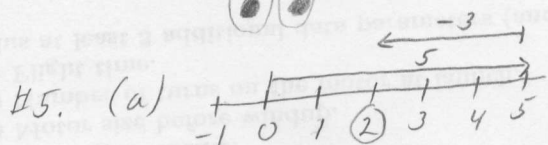
#2. (a) $-(-2) = 2$ (b) $-(-m) = m$ (c) $-0 = 0$

#3. (a) $|-5| = -(-5) = 5$ (b) $|10| = 10$
 (c) $-|-5| = -5$ (d) $-|5| = -5$

#4. (a) $5 + (-3) = 2$ (b) $-2 + 3 = 1$



(c) $-3 + 2 = -1$ (d) $(-3) + (-2) = -5$



#9. (a) $(-45) + (-55) + (-165) + (-35) + (-100) + 75 + 25 + 400$
 $= (-400) + 500 = 100$

Jane had an increase of \$100 in her bank balance.

(b) $300 + 100 = 400$

The balance in Jane's account at the end of January was \$400.

#14. (a) $10w-40$ or $10w-30$ (b) $5w-30$

(c) $10w-40$, $5w-30$ or $10w-30$ (d) none

(e) $10w-30$ or $10w-40$

p. 265

17. (a) $W \cup I = I$ (b) $W \cap I = W$ (c) $I^+ \cup I^- = I - \{0\}$
 (d) $I^+ \cap I^- = \emptyset$ (e) $W - I = \emptyset$ (f) $I - W = I^-$

19. (a) All negative integers (b) All positive integers
 (c) All integers less than -1 (d) $\{-2, 2\}$

22. (a) 89 (b) 19
 $\{11, 12, 13, \dots, 99\}$ $\{-29, -28, -27, \dots, -11\}$

26. (a) $|-x| = |x|$ is true. (b) $|x-y| = | -(-x+y) | = |y-x|$ is true.
 (c) $|(-x)+(-y)| = |-(x+y)| = |x+y|$ is true.

27. (a) $x + 7 = 3$ (b) $-10 + x = -7$
 $x + 7 + (-7) = 3 + (-7)$ $10 + (-10) + x = 10 + (-7)$
 $x + 0 = -4$ $0 + x = 3$
 $x = -4$ $x = 3$

(c) $-x = 5$
 $-(-x) = -(5)$
 $x = 5$

p. 268

10. (a) $-[-(x-10) + (-3)] = -3$ (b) Yes, $-[-(x-10) + (-3)] = -3$
 $-x + 10 + (-3) = 3$ $(x-10) + 3 = -3$
 $-x + 7 = 3$ $x - 7 = -3$
 $-x = -4$ $x = -3 + 7.$
 $x = 4$

15. The method is fine. TIMSS $-3 + x = 5$
 $x = 8$
 The temperature rose 8° .

Worksheet

- #1. (a) 2.4 (b) -6 (c) -84 (d) 75 (e) -45 (f) 2
(g) -2,478.39 (h) 6 (i) -4,580 (j) -5 (k) $8\frac{1}{2}$ (l) -282
(m) 578.36 (n) -794.21 (o) -18 (p) 476 (q) -60 (r) 3

- #2. (a) An inch of water evaporated -1
(b) The temperature is 6° above normal. 6
(c) An upward force of 84 pounds 84
(d) A latitude of 75° south -75
(e) An inventory overage of 45 items 45
(f) A 2-point decrease in stock value -2
(g) An asset of \$3,000,000 3,000,000
(h) A discharge of 6 amperes of electricity -6
(i) Earned \$5,000 5000
(j) A temperature of 5° above zero 5
(k) Walked 9 feet backwards -9
(l) The highest point in the United States is the peak of Mt. McKinley at an elevation of 20,320 feet. 20,320
(m) A checking account overdraft of \$600 600
(n) Pat's credit card account has a \$300 credit 300
(o) Five days from now 5
(p) Rome was founded in 753 B.C. -753
(q) A gain of \$60 60
(r) The cost of living decreased by 3% -3

#3. (a) $-(-12)=12$ (b) $-|-9|=-9$ (c) $-(-(-(-12)))=2$ (d) $-|(-4)|=-4$

- #4. (a) false (b) false (c) True

$$0 \in W$$

$$-1 \in I$$

$$0 \notin N$$

$$-1 \notin N$$