

Module 3, Topic 2

Two-Step Equations and Inequalities

I. A.

- Let p represent the number of pins Eva has.
 $2p + 34 = 82$
 $p = 24$
Eva has 24 pins and Dulcina has 58 pins.
- Let f represent the number of action figures Albert has.
 $2f + 42 = 110$
 $f = 34$
Albert has 34 action figures and Jason has 76 action figures.
- Let w represent the number of pounds Rico weighs.
 $2w + 35 = 49$
 $w = 7$
Rico weighs 7 pounds and Tripp weighs 42 pounds.
- Let m represent the number of magnets Peter has.
 $2m - 64 = 112$
 $m = 88$
- Let g represent the number of pounds of grapes Anna bought.
 $4g + 2 = 14$
 $g = 3$
Anna bought 3 pounds of grapes, 5 pounds of apples, and 6 pounds of bananas.
- Let p represent the amount each person will earn from the profits.
 $3p + 40 = 280$
 $p = 80$
Each person will earn \$80.
- Let a represent Lexi's age.
 $2a - 3 = 33$
 $a = 18$
Lexi is 18 and Tanner is 15.
- Let p represent the population of the Lake Section.
 $3p + 188 = 4298$
 $p = 1370$
The population of the Lake Section is 1370 and the population of the Hill Section is 2928.
- Let t represent the amount the third-place seller will receive.
 $4t + 24 = 104$
 $t = 20$
The third-place seller will receive \$20, the second-place seller will receive \$28, and the first-place seller will receive \$56.
- Let y represent the age of the youngest child.
 $4y + 4 = 32$
 $y = 7$
The youngest child is 7, the middle child is 11, and the oldest child is 14.

- 11.** Let t represent the number of tickets won by the friend who won fewer tickets.
 $2t + 130 = 800$
 $t = 335$
 One friend won 335 tickets and the other won 465 tickets.
- 12.** Let n represent the number of nonfiction books.
 $5n - 400 = 3120$
 $n = 704$
 There are 704 nonfiction books, 304 reference books, and 2112 fiction books.
- 13.** Let d represent the number of laps Daniel swam.
 $5d + 125 = 1875$
 $d = 350$
 Daniel swam 350 laps, Hannah swam 700 laps, and Cameron swam 825 laps.
- 14.** Let p represent the amount each boy earns.
 $2p + 20 = 177$
 $p = 78.5$
 Each boy will profit \$78.50.
- 15.** Let g represent the acres of grassy areas.
 $2g + 482 = 644$
 $g = 81$
 There are 81 acres of grassy areas and 563 acres of woods.
- 16.** Let w represent the number of workers in the largest building.
 $3w - 1200 = 7800$
 $w = 3000$
 There are 3000 workers in the largest building, 2700 workers in the second-largest building, and 2100 workers in the smallest building.

I. B.

- | | | |
|------------------------------|--------------------------------|--------------------------------|
| 1. $x = 6$ | 2. $t = 10$ | 3. $d = \frac{9}{2}$ |
| 4. $x = 32$ | 5. $w = 7.7$ | 6. $b = 5$ |
| 7. $m = -\frac{5}{3}$ | 8. $x = 36$ | 9. $c = 3\frac{1}{3}$ |
| 10. $y = 1.43$ | 11. $n = -1\frac{1}{4}$ | 12. $f = 10\frac{1}{4}$ |

I. C.

- | | | |
|------------------------------|----------------------|-------------------------------|
| 1. $x = -3$ | 2. $b = -18$ | 3. $m = -26$ |
| 4. $y = -\frac{9}{2}$ | 5. $a = -8$ | 6. $x = -1$ |
| 7. $s = -2$ | 8. $g = 29$ | 9. $c = -\frac{1}{3}$ |
| 10. $k = -5$ | 11. $p = -60$ | 12. $x = -\frac{1}{5}$ |

II. A.

- | | | |
|---------|--------|---------|
| 1. Yes | 2. No | 3. No |
| 4. Yes | 5. No | 6. Yes |
| 7. No | 8. No | 9. Yes |
| 10. Yes | 11. No | 12. Yes |

II. B.

- | | | |
|---------------|------------------------|---------------|
| 1. $z = 3$ | 2. $a = -162$ | 3. $w = -2$ |
| 4. $x = 3$ | 5. $s = 0$ | 6. $n = -8$ |
| 7. $b = -4$ | 8. $p = 3$ | 9. $y = -14$ |
| 10. $x = 15$ | 11. $c = -8$ | 12. $w = 0$ |
| 13. $k = -30$ | 14. $z = 15$ | 15. $y = -5$ |
| 16. $u = 8$ | 17. $g = -2$ | 18. $j = -12$ |
| 19. $t = -9$ | 20. $z = 4$ | 21. $m = 2$ |
| 22. $v = 20$ | 23. $x = -\frac{1}{2}$ | 24. $d = 96$ |

II. C.

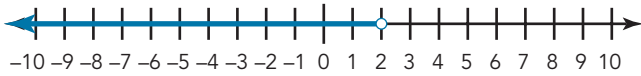
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|----------------------|-----------------------|--------------|
| 1. $y = \frac{5}{2}$ | 2. $w = -\frac{1}{2}$ | 3. $w = -4$ |
| 4. $z = -12$ | 5. $w = \frac{1}{5}$ | 6. $x = 8$ |
| 7. $w = \frac{1}{3}$ | 8. $y = 3$ | 9. $y = -5$ |
| 10. $y = -30$ | 11. $w = 70$ | 12. $x = -3$ |

II. D.

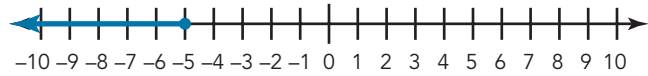
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|------------------------|-------------------------------|------------------------------|
| 1. $t = \frac{d}{r}$ | 2. $h = \frac{2A}{b}$ | 3. $d = 2Q - c$ |
| 4. $x = \frac{y-b}{m}$ | 5. $S = \frac{360A}{\pi r^2}$ | 6. $a = \frac{2(S-ut)}{t^2}$ |

III. A.

1.



2.



3.



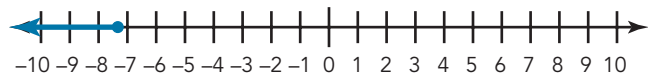
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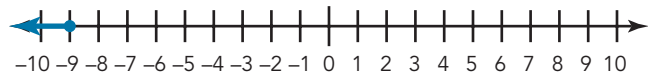
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7.



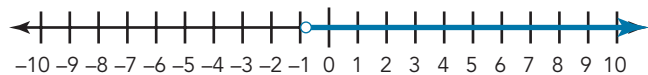
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9.



10.



III. B.

1. $x \leq 17$

2. $x \leq -6$

3. $x > -4$

4. $2 \leq x$

5. $7 > x$

6. $x \geq 7$

7. $x < -7$

8. $-2 < x$

9. $x \geq 13$

10. $-12 \geq x$

11. $-5 < x$

12. $x < -3$