Answers for Lesson 6-6, pp. 291–292   Exercises

1. When you multiply or divide each side of an inequality by a positive number, the relationship between the two sides does not change. When you multiply or divide by a negative number, the direction of the inequality sign reverses.

2. No; it will only include numbers less than or equal to -12.

3. $d > 12$ 4. $b < 4$ 5. $y > 0$

6. $-20 < r$ 7. $c < 2$ 8. $y \leq -5$

9. $w \leq -9$ 10. $-36 \leq x$

11. $4.89s \leq 23.50$; 4 specials   12. $0.375c \leq 36$; 96 CD cases

13. $r \geq -6$

```
←——●———+——+——→
  −9 −6 −3   0
```

14. $m < 0$

```
←——+——+——⊕——+——→
  −4 −2   0   2
```

15. $z \geq 96$

```
←——+——+——●——→
  0  48 96
```

16. $140 \leq b$

```
←——+——+——●——→
  0   70 140
```

17. $-12 > x$

```
←———+———⊕——+——+——→
    −12 −6    0
```

18. $x \geq -4$

```
←——+——●——+——→
  −6 −4 −2
```

19. $w > 7$

```
←——+——⊕——+——→
  0   7  14
```

20. $5 < q$

```
←——+——+——+——+——+——⊕——+——+——→
  0  1  2  3  4  5  6  7
```

21. $-30 \leq r$

```
←——●——+——+——+——→
  −30    −10  0
```

22. 4 buses   23. -3

24. In $5x < 20$, you must divide each side by a positive number to get $x < 4$. In $-5x < 20$, you must divide each side by a negative number, which changes the direction of the inequality symbol. You will also get -4 on the right instead of 4. So $x > -4$.

25. a and b must have opposite signs.

26. a and b must have opposite signs.

27. a can be positive or negative, but b must be positive.

28. *a* and *b* must have the same sign, and *a* and *b* ≠ 0.

29. 4 teachers   **30.** 27 h

31. No; it is only true if *b* is positive. If *b* = 0, the problem is undefined. If *b* is negative, the inequality sign needs to change.

32. D   **33.** F   **34.** D

35. *y* ≤ 26

23 24 25 26 27

36. *a* > 22

21 22 23 24 25

37. *w* ≥ 15

13 14 15 16 17