Solve each inequality. Then graph it on a number line.
(Lesson 5-1) **1–4. See margin.**

1. $x - 8 > 4$

2. $m + 2 \geq 6$

3. $p - 4 < -7$

4. $12 \leq t - 9$

5. CONCERTS Lupe's allowance for the month is $60. She wants to go to a concert for which a ticket costs $45. (Lesson 5-1)

  a. Write and solve an inequality that shows how much money she can spend that month after buying a concert ticket. **$m + 45 \leq 60$; $m \leq 15$**

  b. She spends $9.99 on music downloads and $2 on lunch in the cafeteria. Write and solve an inequality that shows how much she can spend after these purchases and the concert ticket.
$m + 45 + 9.99 + 2 \leq 60$; $m \leq 3.01$

Define a variable, write an inequality, and solve each problem. Check your solution. (Lesson 5-1)
6–8. See Ch. 5 Answer Appendix.

6. The sum of a number and −2 is no more than 6.

7. A number decreased by 4 is more than −1.

8. Twice a number increased by 3 is less than the number decreased by 4.

18. ANIMALS The world's heaviest flying bird is the great bustard. A male bustard can be up to 4 feet long and weigh up to 40 pounds. (Lesson 5-2)
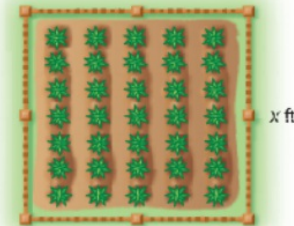
  a. Write inequalities to describe the ranges of lengths and weights of male bustards. **$0 < \ell \leq 4$; $0 < w \leq 40$**

  b. Male bustards are usually about four times as heavy as females. Write and solve an inequality that describes the range of weights of female bustards.
$0 < 4w \leq 40$; $0 < w \leq 10$

19. GARDENING Bill is building a fence around a square garden to keep deer out. He has 60 feet of fencing. Find the maximum length of a side of the garden. (Lesson 5-2)
$x \leq 15$; at most 15 ft on each side

x ft

Solve each inequality. Check your solution. (Lesson 5-3)

20. $4a - 2 > 14$ **$a > 4$**

Mid-Chapter Quiz

6. Sample answer: Let $x =$ the number; $x + (-2) \leq 6$; $x \leq 8$

7. Sample answer: Let $x =$ the number; $x - 4 > -1$; $x > 3$

8. Sample answer: Let $x =$ the number; $2x + 3 < x - 4$; $x < -7$

8. Twice a number increased by 3 is less than the number decreased by 4.

9. MULTIPLE CHOICE Jane is saving money to buy a new cell phone that costs no more than $90. So far, she has saved $52. How much more money does Jane need to save? (Lesson 5-1) **C**

A $38

B more than $38

C no more than $38

D at least $38

Solve each inequality. Check your solution. (Lesson 5-2)

10. $\frac{1}{3}y \geq 5$ **y ≥ 15**

11. $4 < \frac{c}{5}$ **c > 20**

12. $-8x > 24$ **x < −3**

13. $2m \leq -10$ **m ≤ −5**

14. $\frac{x}{2} < \frac{5}{8}$ **x < $\frac{5}{4}$**

15. $-9a \geq -45$ **a ≤ 5**

16. $\frac{w}{6} > -3$ **w > −18**

17. $\frac{k}{7} < -2$ **k < −14**

Solve each inequality. Check your solution. (Lesson 5-3)

20. $4a - 2 > 14$ **a > 4**

21. $2x + 11 \leq 5x - 10$ **x ≥ 7**

22. $-p + 4 < -9$ **p > 13**

23. $\frac{d}{4} + 1 \geq -3$ **d ≥ −16**

24. $-2(4b + 1) < -3b + 8$ **b > −2**

Define a variable, write an inequality, and solve each problem. Check your solution. (Lesson 5-3)

25. Three times a number increased by 8 is no more than the number decreased by 4.

26. Two thirds of a number plus 5 is greater than 17.

25–26. See Ch. 5 Answer Appendix.

27. MULTIPLE CHOICE Shoe rental costs $2, and each game bowled costs $3. How many games can Kyle bowl without spending more than $15? (Lesson 5-3) **H**

F 2

H 4

G 3

J 5

25. Sample answer: Let $x =$ the number; $3x + 8 \leq x - 4$; $x \leq -6$

26. Sample answer: Let $x =$ the number; $\frac{2}{3}x + 5 > 17$; $x > 18$