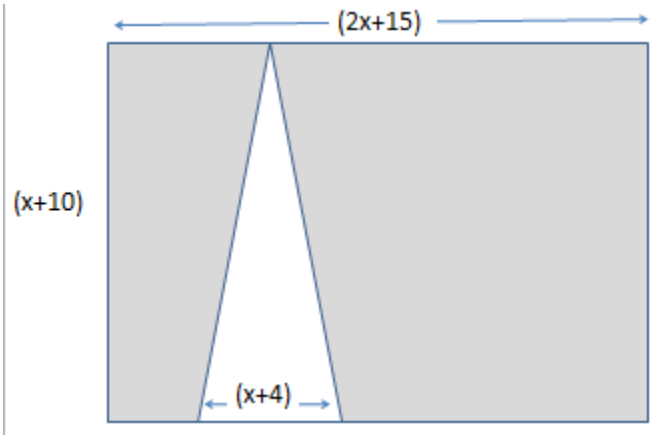
Chapter 6 Test Review

Simplify

1. $(9p^2-6p^3+3-11p)+(7p^3-3p^2+4)$
2. $(8a^2b-6a)-(2a^2b-4a+19)$
3. $(3k-1)(4k+9)$
4. $(-r+7)(2r^2-r-9)$
5. $(-x-2y)^2$
6. $(6x+y)(6x-y)$
7. During the period 1998-2002, the number A (in millions) of books for adults and the number J (in millions) of books for juveniles sold can be modeled by
   $A=9.5t^3-58t^2+66t+500$ and
   $J=-15t^2+64t+360$
   Where t is the number of years since 1998.
   1. Write an equation that gives the total number (in millions) of books for adults and for juveniles sold as a function of the number of years since 1998.
   2. Were more books sold in 1998 or 2002?

8. Find the area of the shaded region.



Simplify each expression. Variables represent nonnegative numbers.

9. $\left(\sqrt[5]{x^{15}y^{25}}\right)^2$
10. $\frac{(4x^{-3}y^5)^3}{(16x^2y^{-2})^{-4}}$
11. $\left(\sqrt[3]{\frac{343}{125}}\right)^{-3}$

Determine if the following sets are closed under the given operation.

12. Whole numbers; division
13. Rational numbers; multiplication
14. {-4, -2, 0, 2, 4}; addition
15. {x, x+1, x+2, x+3, ...}; addition

Find the degree of each polynomial.

16. $4x^2y^2z^2$
17. $4x^2 - 3x + 2$
18. 15
19. $32b^3cde^7 + b^3d^{14} - b + d$

20. Determine which of the following are polynomials?

a. 17 b. $-\frac{1}{2}$ c. a^{-3} d. $x^{\frac{2}{3}}$ e. $-\frac{1}{3}x^5y^7z^3$ f. 0