

# Index

**Absolute value**, 12

## **Algebra**

absolute value, 12  
coordinate plane, 113, 523  
equations, 10, 38  
  of a circle, 525  
  equivalent, 245  
  linear. *See* Linear equations  
  quadratic, 163  
  systems of, 69  
exponents, rules of, 534  
expressions, algebraic, 419, 451  
fractions, 237  
function, 571  
identity, 606  
inequalities, 203–233  
inverse of a number, 606  
number line, 11–12  
properties of, 37–39, 43 (Ex. 15), 204  
radicals, 287  
ratio and proportion, 241–248  
sequence, 261  
series, 48  
*See also* Inequalities and Linear equations

**Algebra Review**, 10, 69, 113, 163, 237, 280, 419, 451, 534

**Algorithm**, 598

## **Altitude**

of a cylinder, 490  
of a parallelogram, 424  
of a prism, 475  
of a pyramid, 482  
of a trapezoid, 435  
of a triangle, 152, 386–387

## **Angle(s)**, 17

acute, 17  
adjacent, 19  
alternate exterior, 75  
alternate interior, 74, 78  
bisector of, 19, 44, 154, 376  
central, 339  
central, of regular polygon, 441  
in circles, 349–361  
complementary, 50, 61

congruent, 19, 376  
corresponding, 74, 78  
  in congruence, 117–118  
  in similarity, 249  
of depression, 317  
of elevation, 317  
exterior, 74  
exterior, in polygon, 95, 101–102, 204  
included, in polygon, 122  
inscribed, 349–352  
interior, 74, 102  
measure of, 17–18, 27  
obtuse, 17  
opposite, 122  
of polygon, 101–103  
remote interior, 95  
right, 17  
same-side exterior, 75  
same-side interior, 74, 79  
sides of, 17  
straight, 17  
sum of measures in triangle, 21 (Ex. 25), 89, 94  
supplementary, 50, 61  
of triangle, 93–95  
trisection, 99, 399  
vertex of, 17  
vertical, 51

**Apothem**, 441

## **Applications**

architecture, 253  
area, maximizing, 427, 514  
art, 253  
baseball, 104  
basketball, 449  
carpentry, 24 (Exs. 14, 15)  
center of gravity, 390  
of circles, 449–450, 454–455  
communication by satellite, 343  
distance  
  estimating, 132 (Ex. 16), 256 (Ex. 13), 257 (Ex. 15), 258 (Exs. 16, 17, 20), 259 (Ex. 32), 273 (Ex. 24), 310 (Exs. 29, 30), 315, 318–320  
to the horizon, 367–368

Earth, 340, 343  
electrical circuits, 653–654  
engineering, 512 (Ex. 16)  
Fibonacci sequence, 261  
Finding the Shortest Path, 224  
geodesic domes, 505–506  
grade of a road, 309 (Exs. 19, 20)  
gravity, 319 (Ex. 12), 390–391  
honeycomb, 104  
ironing board, 174  
latitude, 342  
lens law, 260  
mirrors, 582–583, 614  
orienteering, 54–55  
painting, 427 (Exs. 29, 30), 501 (Exs. 20, 21)  
pantograph, 265  
parallel rulers, 173  
passive solar design, 321  
pliers, 173  
points, locating, 27–28, 157 (Ex. 19)  
of rhombuses, 196  
scale drawings, 248, 262  
scissors truss, 298  
of similar solids, 511–512  
soccer, 105 (Ex. 20), 320 (Ex. 13)  
space shuttle landings, 467–469  
of sphere, 497, 500–501  
Steiner's Problem, 564  
technical drawing, 90–92  
temperature, 16  
tiling, 105 (Exs. 18–20), 657  
traveling salesperson  
  problems, 678–681  
triangles, bracing with, 133  
trigonometric, 317–319  
tripod, 24  
vectors, 539–541  
volume, maximizing, 481, 502, 515  
wrench, 303 (Ex. 38)  
*See also* Careers, Calculator Key-In, Chapter Photos on pages xvi, 32, 116, 202, 240, 284, 328, 374, 422, and Computer Key-In