

Key Vocabulary Index

Mathematical terms are best understood when you see them used and defined *in context*. This index lists where you will find key vocabulary. A full glossary is available in your Record and Practice Journal and at *BigIdeasMath.com*.

- adjacent angles, 201
- base, 444
- complementary angles, 200
- composite figure, 236
- composite solid, 292
- concave polygon, 214
- congruent sides, 206
- continuous domain, 134
- convex polygon, 214
- dependent events, 429
- dependent variable, 128
- dilation, 230
- discount, 178
- discrete domain, 134
- domain, 128
- equiangular triangle, 206
- equilateral triangle, 206
- experimental probability, 421
- exponent, 444
- function, 128
- graph of an inequality, 33
- hypotenuse, 364
- independent events, 428
- independent variable, 128
- indirect measurement, 223
- inequality, 32
- interest, 184
- irrational number, 372
- isosceles triangle, 206
- lateral face, 260
- legs, 364
- line of best fit, 404
- linear equation, 64
- linear function, 142
- literal equation, 24
- markup, 178
- net, 264
- nonlinear function, 148
- percent, 164
- percent of change, 170
- percent of decrease, 170
- percent of increase, 170
- perfect square, 358
- polygon, 212
- polyhedron, 260
- power, 444
- principal, 184
- Pythagorean Theorem, 364
- Pythagorean triple, 387
- radical sign, 358
- radicand, 358
- range, 128
- real numbers, 372
- reflection, 228
- regular polygon, 213
- regular pyramid, 280
- rise, 70
- rotation, 228
- run, 70
- scatter plot, 402
- scientific notation, 464
- similar solids, 340
- similar triangles, 222
- simple interest, 184
- slant height (of a cone), 286
- slant height (of a pyramid), 280
- slope, 70
- slope-intercept form, 78
- solid, 260
- solution of an inequality, 32
- solution of a linear equation, 64
- solution set, 32
- square root, 358
- standard form, 84
- supplementary angles, 200
- surface area, 264
- theorem, 362
- theoretical probability, 420
- translation, 228
- vertical angles, 201
- volume, 308
- x -intercept, 78
- y -intercept, 78

Student Index

This student-friendly index will help you find vocabulary, key ideas, and concepts. It is easily accessible and designed to be a reference for you whether you are looking for a definition, a real-life application, or help with avoiding common errors.

A

Addition

- of integers, 441
- Property of Equality, 4–5
- Property of Inequality, 38

Adjacent angles, *See also* Angle(s)

- defined, 201

Algebra

equations

- linear, 62–67
- literal, 24
- multi-step, 10–15
- percent, 162–167
- real-life problems, 108–113
- rewriting, 22–27
- simple, 2–9
- variables on both sides, 16–21
- writing in slope-intercept form, 76–81
- writing with a slope and a point, 96–101
- writing with two points, 102–107

functions

- domain of, 126–131
- range of, 126–131

inequalities

- one-step, 36–43
- two-step, 44–49
- writing and graphing, 30–35

Algebraic equation(s)

- simplifying, 1

Angle(s)

- acute, 206
- adjacent
 - defined, 201
- classifying, 198–203
 - error analysis, 202
 - practice problems, 202–203
- complementary
 - defined, 198, 200
- congruent, 201, 222
- measures
 - of a polygon, 212
 - of a triangle, 206
- obtuse, 206

- of a polygon, 210–217
 - error analysis, 215, 216
 - practice problems, 215–217
 - real-life application, 213
 - regular, 280
- right, 206
- of similar triangles, 222
- supplementary
 - defined, 198, 200
- of a triangle, 204–209
 - practice problems, 208–209
- vertical
 - defined, 201
 - writing, 202

Area

- of a circle, 257
 - formula, 257
 - real-life application, 359
- of a composite figure, 240–245, 257
 - practice problems, 244–245
- of a parallelogram, 22
- of a trapezoid, 22
- of a triangle, 22
 - formula, 22, 267

B

Bar graph

- defined, 410

Base

- defined, 444
- of a power, 444

C

Circle(s)

- area of, 257
 - formula, 257
- circumference of, 22
- diameter of
 - formula, 287
- Circle graph(s), defined, 410
- Circumference
 - of a circle, 22
- Common Errors
 - exponents, 458
 - inequalities, 40

- percent equations, 164

- Quotient of Powers Property, 458

Comparison chart, 138

Complementary angles, *See also*

Angle(s)

- defined, 198, 200

Composite figure(s)

- area of, 240–245, 257
 - practice problems, 244–245
- defined, 236
- perimeter of, 234–239
 - error analysis, 238
 - practice problems, 238–239

Composite solid(s)

- defined, 292
- surface area of, 290–295
 - practice problems, 294–295
- volume of, 332–337
 - practice problems, 336–337
 - real-life application, 335
 - writing, 336

Concave polygon(s), *See also*

Polygon(s)

- defined, 214

Cone(s)

- defined, 284
- height of, 326
- oblique
 - volume of, 325
- slant height of, 286
- surface area of, 284–289
 - formula, 24, 286
 - practice problems, 288–289
 - real-life application, 287
- volume of, 324–329
 - error analysis, 328
 - formula, 23, 324, 326
 - practice problems, 328–329
 - real-life application, 327
 - writing, 328

Congruent sides, *See also*

Triangle(s)

- defined, 206

Connections to math strands,

Throughout. For example see:

- geometry, 173, 282, 289

Continuous domain(s), *See also*

Domain(s), Function(s)

defined, 134

of a function, 132–137

error analysis, 136

graphing, 134–135

practice problems, 136–137

writing, 136

Convex polygon(s), *See also*

Polygon(s)

defined, 214

Coordinate plane(s)

graphing

linear equations, 62–67

slope of a line, 68–75

slope-intercept form, 76–81

standard form, 82–87

ordered pairs, 64

Cylinder(s)

defined, 260

oblique

volume of, 325

surface area of, 270–275

error analysis, 274

formula, 270, 272

practice problems, 274–275

real-life application, 273

volume of, 23, 312–317

error analysis, 316

formula, 314

practice problems, 316–317

real-life application, 315

D

Data

misleading, 412

practice problems, 413–415

organizing, 399

bar graph, 410

choosing a display, 408–415

circle graph, 410

histogram, 410

line graph, 410

line plot, 410

pictograph, 410

practice problems, 413–415

project, 409

scatter plot, 400–407, 410

stem-and-leaf-plot, 410

writing, 414

Data analysis

bar graph

defined, 410

circle graph

defined, 410

displaying data, 408–415

misleading, 412

practice problems, 413–415

project, 409

histogram

defined, 410

line graph

defined, 410

line plot

defined, 410

lines of best fit

defined, 404

error analysis, 406

practice problems, 405–407

project, 407

and scatter plots, 400–407

writing, 405

pictographs

defined, 410

scatter plots

defined, 402, 410

error analysis, 406

and lines of best fit, 400–407

practice problems, 405–407

project, 407

stem-and-leaf-plot

defined, 410

Decimal(s)

comparing, 355

repeating, 372

terminating, 372

Dependent events, *See also* Event(s)

defined, 429

Dependent variable(s)

defined, 128

Diameter

formula, 287

Dilation

center of, 230

defined, 230

Discount(s), 176–181

defined, 178

practice problems, 180–181

writing, 180

Discrete domain(s), *See also*

Domain(s), Function(s)

of a function, 132–137

defined, 134

error analysis, 136

graphing, 134–135

practice problems, 136

writing, 136

Distributive Property

to solve an equation, 13

Division

Property of Equality, 5

Property of Inequality, 39–40

Domain(s)

of a function, 126–131

continuous, 132–137

defined, 128

discrete, 132–137

error analysis, 130, 136

graphing, 134–135

practice problems, 130–131,
136–137

real-life application, 129

writing, 136

E

Equality

Property of

Addition, 4–5

Division, 5

Multiplication, 5

Subtraction, 4–5

Equation(s)

formulas

rewriting, 22–27

graphing

practice problems, 66–67,
80–81, 86–87, 112–113

in slope-intercept form, 76–81

in standard form, 82–87

like terms

combining, 12

linear

defined, 64

error analysis, 66, 74, 80, 86,
94

graphing, 62–67

practice problems, 66–67,
80–81, 86–87, 94–95,
112–113real-life applications, 65, 79,
85

slope of a line, 68–75

in slope-intercept form, 76–81

solutions, 64

in standard form, 82–87

literal

defined, 24

- multi-step
 - error analysis, 14
 - practice problems, 14–15
 - real-life application, 13
 - solving, 10–15
- percent, 162–167
 - error analysis, 166
 - modeling, 162–165
 - practice problems, 166–167
 - real-life application, 165
- rewriting, 22–27
 - error analysis, 26
 - real-life application, 25
- simple
 - error analysis, 8
 - practice problems, 7–9
 - real-life application, 6
 - solving, 2–9
- slope of the line, 68–75
- in slope-intercept form
 - error analysis, 94
 - graphing, 76–81
 - practice problems, 80–81, 94–95
 - real-life applications, 79, 93, 110
- solving
 - with Distributive Property, 13, 18
 - error analysis, 8, 14, 20
 - multi-step, 10–15
 - practice problems, 7–9, 14–15, 20–21
 - real-life applications, 6, 13, 19, 110, 111
 - simple, 2–9
 - temperature conversion, 25
 - variables on both sides, 16–21
- in standard form
 - graphing, 82–87
- temperature conversion, 25
 - real-life application, 25
- variables
 - dependent, 128
 - independent, 128
- variables on both sides, 16–21
 - error analysis, 20
 - practice problems, 20–21
 - real-life application, 19
 - writing, 20
- writing
 - practice problems, 94–95
 - in slope-intercept form, 90–95
- writing using a slope and a point, 96–101
 - error analysis, 100
 - practice problems, 100–101
 - real-life applications, 99, 111
 - writing, 100
- writing using two points, 102–107
 - error analysis, 106
 - practice problems, 106–107
 - real-life application, 105
 - writing, 106
- Equiangular triangle(s)**, *See also* Triangle(s)
 - defined, 206
- Equilateral triangle(s)**, *See also* Triangle(s)
 - defined, 206
- Error Analysis, *Throughout. For example see:*
 - angles
 - classifying, 202
 - of a polygon, 215
 - composite figures
 - perimeter of, 238
 - cones
 - volume of, 328
 - cylinders
 - surface area of, 274
 - volume of, 316
 - data analysis
 - scatter plots, 406
 - equations
 - graphing, 66
 - linear, 66, 80, 86, 94
 - multi-step, 14
 - percent, 166
 - rewriting, 26
 - simple, 8
 - variables on both sides, 20
 - writing using two points, 106
 - writing with a slope and a point, 100
 - exponents, 446
 - Product of Powers Property, 452
 - Quotient of Powers Property, 460
 - expressions, 446
 - functions
 - domain of, 130, 136
 - range of, 130
 - indirect measurement, 224
 - inequalities
 - one-step, 41, 42
 - two-step, 48
 - writing, 34
- interest
 - simple, 186
- percent
 - of change, 172
 - equation, 166
 - of increase, 172
- perimeter
 - of a composite figure, 238
- polygons
 - angle measures of, 215, 216
 - transformations of, 231, 232
- powers, 452, 460
- prisms
 - volume of, 310
- probability, 424
 - of an event, 431
- Product of Powers Property, 452
- Pythagorean Theorem, 366
- Quotient of Powers Property, 460
- scatter plots
 - line of best fit, 406
- scientific notation, 467, 468
- slope of a line, 74
- slope-intercept form, 80
 - writing, 94
- solids
 - similar, 344
 - surface area of, 274
 - volume of, 316, 328
- square roots
 - approximating, 375
 - finding, 360
 - simplifying, 382
- standard form
 - of linear equations, 86
 - of scientific notation, 467, 468
- surface area
 - of a cylinder, 274
- transformations
 - of a polygon, 231, 232
- triangles
 - classifying, 208
 - right, 366
 - similar, 224
- volume
 - of a cone, 328
 - of a cylinder, 316
 - of a prism, 310
 - of similar solids, 344
- Event(s), *See also* Probability
 - dependent, 426–431
 - defined, 429

independent, 426–431
 defined, 428
 probability of, 426–431
 error analysis, 431
 formula, 428–429
 practice problems, 430–431
 writing, 431

Example and non-example chart,
 218

Experimental probability, *See also*
 Probability
 compared to theoretical, 422
 defined, 421
 error analysis, 424
 formula, 421
 practice problems, 423–425

Exponent(s)
 defined, 444
 error analysis, 446, 452, 460
 negative, 444
 powers and, 444
 error analysis, 452, 460
 practice problems, 452–453,
 460–461
 Product of Powers Property,
 448–453
 Quotient of Powers Property,
 456–461
 real-life application, 459
 writing, 460
 properties of, 442–447
 real-life applications, 445, 459
 scientific notation and, 462–469
 error analysis, 467, 468
 practice problems, 467–469
 project, 469
 standard form of, 464
 zero, 444

Expression(s)
 evaluating, 61, 444–447
 error analysis, 446
 practice problems, 446–447

F

Formula(s)
 area
 of a circle, 257
 of a trapezoid, 22
 of a triangle, 22, 267
 circumference, 22
 diameter, 287
 percent of change, 170
 percent of decrease, 170

percent of increase, 170
 perimeter
 of a rectangle, 22
 probability
 of dependent events, 429
 experimental, 421
 of independent events, 428
 theoretical, 420
 Pythagorean Theorem, 364
 Pythagorean triple, 387
 rewriting, 22–27
 practice problems, 26–27
 writing, 27
 slope, 70–71
 surface area
 of a cone, 24, 286
 of a cylinder, 270, 272
 of a prism, 266–267
 temperature conversion, 25
 volume
 of a cone, 23, 324, 326
 of a cylinder, 23, 314
 of a prism, 23, 308
 of a pyramid, 23, 320
 of a rectangular prism, 381

Formula triangle, 330
 Four square, 276

Function(s)
 defined, 128
 dependent variables, 128
 domain of, 126–131
 continuous, 132–137
 defined, 128
 discrete, 132–137
 error analysis, 130, 136
 practice problems, 130–131,
 136–137
 real-life application, 129
 independent variables, 128

linear
 defined, 142
 patterns, 140–145
 practice problems, 144–145,
 150–151
 real-life applications, 143, 149

nonlinear
 compared with linear, 146–151
 defined, 148
 practice problems, 150–151
 real-life application, 149

project, 151
 range of, 126–131
 defined, 128
 error analysis, 130

G

Geometry
 angles, *See* Angle(s)
 area, *See* Area
 circles, 22
 composite figures, *See*
 Composite figure(s)
 perimeter, *See* Perimeter
 polygons, *See* Polygon(s)
 Pythagorean Theorem, *See*
 Pythagorean Theorem
 transformations, *See*
 Transformation(s)
 triangles, *See* Triangle(s)

Golden ratio, 378–379

Graph(s)
 bar graph
 defined, 410
 circle graph, 399
 defined, 410
 displaying data, 408–415
 practice problems, 413–415
 project, 409
 writing, 414
 histogram
 defined, 410
 line
 defined, 410
 line of best fit
 defined, 404
 error analysis, 406
 writing, 405
 line plot
 defined, 410
 misleading
 practice problems, 414
 pictograph
 defined, 410
 practice problems, 413–415
 scatter plots
 defined, 402, 410
 error analysis, 406
 and lines of best fit, 404–407
 practice problems, 405–407
 project, 407
 stem-and-leaf plot
 defined, 410

Graph of an inequality, *See also*
 Inequality
 defined, 33

Graphic organizers
comparison chart, 138
example and non-example
chart, 218
formula triangle, 330
four square, 276
information frame, 416
information wheel, 454
process diagram, 88
summary triangle, 174, 368
Y-chart, 28

Graphing

functions
domains of, 134–135
inequalities, 30–35
practice problems, 34–35
linear equations, 62–67
error analysis, 66, 80, 86
practice problems, 66–67,
80–81, 86–87, 112–113
real-life applications, 65, 79,
85, 110, 111
in slope-intercept form, 76–81
in standard form, 82–87
slope of a line, 68–75
error analysis, 74
formula, 70–71
horizontal, 71, 93
parallel, 72
practice problems, 73–75
project, 74
rise, 70
run, 70
in slope-intercept form, 76–81
error analysis, 80
intercepts, 78
practice problems, 80–81
real-life applications, 79, 110



Histogram(s), defined, 410
Hypotenuse, defined, 364



Independent events, *See also*
Event(s)
defined, 428

Independent variable(s), defined,
128

Indirect measurement
defined, 223
error analysis, 224
project, 225

Inequality

defined, 32
graphing, 30–35
defined, 33
practice problems, 34–35
one-step
error analysis, 41, 42
practice problems, 41–43
solving, 36–43
writing, 41

Property of

Addition, 38
Division, 39–40
Multiplication, 39–40
Subtraction, 38

real-life application, 47
solution of, 32
solution sets, 32
solving
error analysis, 41, 42, 48
one-step, 36–43
practice problems, 41–43,
48–49
two-step, 44–49
symbols of, 32
two-step, 44–49
error analysis, 48
practice problems, 48–49
writing, 48
writing, 30–35
error analysis, 34
practice problems, 34–35

Information frame, 416

Information wheel, 454

Inputs and outputs, *See also*
Function(s)

dependent variables, 128
independent variables, 128
patterns of, 125

Integer(s)

adding, 441
subtracting, 441

Intercept(s)

defined, 78
finding, 78–79
practice problems, 80–81,
112–113

Interest

defined, 184
principle
defined, 184
simple, 182–187
defined, 184
error analysis, 186

practice problems, 186–187
writing, 186

Inverse operation(s), 4–5
using to solve inequalities, 38

Irrational number(s), 370
defined, 372

Isosceles triangle(s), *See also*
Triangle(s)
defined, 206



Lateral face(s), defined, 260

Leg(s), defined, 364

Like terms
combining, 12

Line(s)

parallel
and slope, 72
slope of a, 68–75
error analysis, 74
formula, 71
horizontal, 71, 93
practice problems, 73–75
project, 74
rise, 70
run, 70

Line of best fit, *See also* Data
analysis, Graph(s)

defined, 404
and scatter plots, 400–407
error analysis, 406
practice problems, 405–407
project, 407
writing, 405

Line graph(s)
defined, 410

Line plot(s)
defined, 410

Linear equation(s)

defined, 64
graphing, 62–67
error analysis, 66, 74
practice problems, 66–67,
73–75, 112–113
real-life applications, 85, 110,
111
slope of a line, 68–75
in slope-intercept form, 76–81
solutions, 64
intercepts
practice problems, 80–81,
112–113
real-life applications, 65, 99

slope of a line, 68–75
 error analysis, 74
 formula, 70–71
 practice problems, 73–75,
 112–113
 project, 74
 rise, 70
 run, 70

in slope-intercept form, 76–81
 error analysis, 80, 94
 graphing, 76–81
 intercepts, 78
 practice problems, 80–81,
 94–95
 real-life applications, 79, 93,
 110
 writing, 90–95

solving
 real-life problems, 108–113

in standard form, 82–87
 error analysis, 86
 practice problems, 86–87
 real-life application, 85

used to represent data, 400–401

writing
 error analysis, 94
 practice problems, 94–95
 real-life application, 93
 in slope-intercept form, 90–95

writing using a slope and a
 point, 96–101
 error analysis, 100
 practice problems, 100–101
 real-life applications, 99, 111
 writing, 100

writing using two points, 102–107
 error analysis, 106
 practice problems, 106–107
 real-life application, 105
 writing, 106

Linear function(s), *See also*
 Function(s)
 compared to nonlinear, 146–151
 practice problems, 150–151
 project, 151
 real-life application, 149
 defined, 142
 patterns, 140–145
 practice problems, 144–145
 real-life application, 143

Literal equation(s), *See also*
 Equation(s)
 defined, 24

M

Markup(s), 176–181
 defined, 178
 practice problems, 180–181
 writing, 180

Meaning of a Word
 concave, 214

Multiplication
 Property of Equality, 5
 Property of Inequality, 39–40

Multi-step equation(s), *See*
 Equation(s)

N

Net, defined, 264

Nonlinear function(s), *See also*
 Function(s)
 compared with linear, 146–151
 practice problems, 150–151
 project, 151
 real-life application, 149
 defined, 148

Number(s)
 irrational
 defined, 370, 372
 rational
 defined, 370, 372
 real
 classifying, 372
 defined, 372
 practice problems, 375–377
 writing
 in scientific notation, 465
 in standard form, 464

Number Sense, *Throughout*. *For*
example see:
 angles
 of a polygon, 215
 composite figures
 perimeter of, 238
 exponents, 447
 percent
 of increase, 172
 polygons
 angles of, 215
 square roots, 360

O

One-step inequalities, *See*
 Inequality

Open-Ended, *Throughout*. *For*
example see:
 angles
 classifying, 203
 area
 of a composite figure, 244
 composite figures, 238
 area of, 244
 composite solids, 294
 corresponding linear measures
 of similar solids, 343
 data
 displaying, 413
 data analysis, 406
 equations
 linear, 80
 multi-step, 14
 simple, 9
 variables on both sides, 20
 events
 probability of, 430
 graphs
 misleading, 413
 inequalities, 41, 48
 lines of best fit, 406
 polygons, 216
 transformations of, 232
 prisms
 surface area of, 268
 probability, 423
 of events, 430
 pyramids
 volume of, 322–323
 scatter plots, 406
 slope of a line, 73
 negative, 112
 slope-intercept form, 80
 solids
 similar, 343
 volume of, 322–323
 square roots
 approximating, 376
 surface area
 of a prism, 268
 transformations, 233
 of a polygon, 232
 volume
 of a pyramid, 322–323

Order of operations
 to evaluate expressions, 61
 using, 355

Ordered pair(s), 64

P

Parallelogram(s)

area of, 22

Pattern(s)

of inputs and outputs, 125

of a linear function, 140–145

practice problems, 144–145

real-life application, 143

Percent(s)

of change, 168–173

defined, 170

error analysis, 172

formula, 170

practice problems, 172–173

of decrease, 168–173

defined, 170

formula, 170

practice problems, 172–173

writing, 172

defined, 164

discounts, 176–181

defined, 178

practice problems, 180–181

writing, 180

equations, 162–167

error analysis, 166

modeling, 162–165

practice problems, 166–167

real-life application, 165

of increase, 168–173

defined, 170

error analysis, 172

formula, 170

practice problems, 172–173

markups, 176–181

defined, 178

practice problems, 180–181

writing, 180

modeling, 161

Percent of change, See also

Percent(s)

defined, 170

Percent of decrease, See also

Percent(s)

defined, 170

Percent of increase, See also

Percent(s)

defined, 170

Perfect square(s), defined, 358

Perimeter

of a composite figure, 234–239

error analysis, 238

practice problems, 238–239

of a rectangle, 22

Pictograph

defined, 410

Point(s)

in a coordinate plane, 61

writing equations using a point,
96–101

error analysis, 100

practice problems, 100–101

real-life application, 99

writing, 100

writing equations using two

points, 102–107

error analysis, 106

practice problems, 106–107

real-life application, 105

Polygon(s)

angles of, 210–217

error analysis, 215, 216

practice problems, 215–217

real-life application, 213

concave

defined, 214

convex

defined, 214

defined, 212

pyramids, 260

reading, 212

regular, 280

defined, 213

similar, 197

transformations of, 226–233

dilation, 230

error analysis, 231, 232

practice problems, 231–233

reflections, 228

rotations, 228

translations, 228

Polyhedron(s), See also Solid(s)

defined, 260

prisms, 260

Power(s)

bases of, 444

defined, 444

error analysis, 446, 452

exponents and, 442–447

practice problems, 446–447,

452–453, 460–461

Product of Powers Property,

448–453

error analysis, 452

modeling, 451

practice problems, 452–453

Quotient of Powers Property,

456–461

error analysis, 460

modeling, 459

practice problems, 460–461

real-life application, 459

writing, 460

real-life applications, 445, 459

scientific notation and, 462–469

Practice problems, *Throughout. For example see:*

angles

classifying, 202–203

of a polygon, 215–217

area

of a composite figure, 244–245

composite figures

area of, 244–245

perimeter of, 238–239

composite solids

surface area of, 294–295

volume of, 336–337

cones

surface area of, 288–289

volume of, 328–329

cylinders

surface area of, 274–275

volume of, 316–317

data

analysis, 413–415

organizing, 413–415

data analysis

scatter plots, 405–407

equations

linear, 66–67, 80–81, 86–87,

94–95, 112–113

multi-step, 14–15

percent, 166–167

rewriting, 26–27

simple, 7–9

solving, 7–9, 14–15, 20–21

temperature conversion,

26–27

variables on both sides, 20–21

writing using a point and a

slope, 100–101

writing using two points,

106–107

events

probability of, 430–431

exponents, 446–447

Product of Powers Property,

452–453

- Quotient of Powers Property, 460–461
- scientific notation and, 467–469
- formulas
 - rewriting, 26–27
- functions
 - domain of, 130–131, 136–137
 - linear and nonlinear, 144–145, 150–151
 - range of, 130–131
- graphs
 - displaying data, 413–415
 - scatter plots, 405–407
- graphing
 - inequalities, 34–35
 - linear equations, 66–67, 80–81, 86–87, 112–113
 - slope of a line, 73–75
- inequality
 - graphing, 34–35
 - one-step, 41–43
 - solving, 41–43, 48–49
 - two-step, 48–49
 - writing, 34–35
- interest
 - simple, 186–187
- numbers
 - real, 375–377
 - writing in scientific notation, 467–469
- percent
 - of change, 172–173
 - of decrease, 172–173
 - discounts, 180–181
 - equations, 166–167
 - of increase, 172–173
 - markups, 180–181
- points
 - used to write equations, 100–101, 106–107
- polygons
 - angles of, 215–217
 - transformations of, 231–233
- powers
 - exponents and, 446–447
 - Product of Powers Property, 452–453
 - Quotient of Powers Property, 460–461
- prisms
 - surface area of, 268–269
 - volume of, 310–311
- probability, 423–425
 - of an event, 430–431
- pyramids
 - surface area of, 282–283
 - volume of, 322–323
- Pythagorean Theorem, 366–367
 - using, 388–389
- Quotient of Powers Property, 460–461
- scatter plots, 405–407
- scientific notation, 467–469
- slope of a line, 73–75
- slope
 - writing equations using, 100–101
- slope-intercept form, 80–81, 94–95
 - intercepts, 80–81, 112–113
- solids
 - composite, 294–295, 336–337
 - drawing, 262–263
 - similar, 343–345
 - surface area of, 268–269, 274–275, 282–283, 288–289
 - volume of, 310–311, 316–317, 322–323, 328–329, 336–337
- square roots
 - approximating, 375–377
 - finding, 360–361
 - simplifying, 382–383
- standard form
 - of linear equations, 86–87
- surface area
 - of a composite solid, 294–295
 - of a cone, 288–289
 - of a cylinder, 274–275
 - of a prism, 268–269
 - of a pyramid, 282–283
 - of similar solids, 343–345
- temperature conversion, 26–27
- transformations
 - of a polygon, 231–233
- volume
 - of a composite solid, 336–337
 - of a cone, 328–329
 - of a cylinder, 316–317
 - of a prism, 310–311
 - of a pyramid, 322–323
 - of similar solids, 343–345
- Principal**, *See also* Interest
 - defined, 184
- Prism(s)
 - defined, 260
 - drawing, 260
 - lateral faces of, 260
 - rectangular
 - surface area of, 266
 - volume of, 381
 - surface area of, 264–269
 - formula, 266–267
 - practice problems, 268–269
 - volume of, 23, 306–311
 - error analysis, 310
 - formula, 308
 - practice problems, 310–311
 - real-life application, 309
- Probability, 418–425
 - dependent events
 - defined, 429
 - formula, 429
 - error analysis, 424, 431
 - of an event, 426–431
 - error analysis, 431
 - formula, 428–429
 - practice problems, 430–431
 - writing, 431
 - experimental
 - compared to theoretical, 422
 - defined, 421
 - formula, 421
 - independent events
 - defined, 428
 - formula, 428
 - practice problems, 423–425, 430–431
 - theoretical
 - compared to experimental, 422
 - defined, 420
 - formula, 420
 - writing, 423
 - writing, 423, 431
- Process diagram, 88
- Product of Powers Property, 448–453
 - error analysis, 452
 - modeling, 451
 - practice problems, 452–453
- Product Property of Square Roots, 380
- Properties
 - of Equality
 - Addition, 4–5
 - Division, 5
 - Multiplication, 5
 - Subtraction, 4–5
 - of Inequality
 - Addition, 38
 - Division, 39–40
 - Multiplication, 39–40
 - Subtraction, 38

Powers

- Product of, 448–453
 - Quotient of, 456–461
- of Square Roots
- Product, 380
 - Quotient, 381

Pyramid(s)

- bases of, 278
- defined, 260
- drawing, 261
- height of, 320
- lateral faces of, 260
- regular
 - defined, 280
- slant height of
 - defined, 280
- surface area of, 278–283
 - practice problems, 282–283
 - real-life application, 281
- volume of, 318–323
 - formula, 23, 320
 - practice problems, 322–323
 - real-life application, 321
 - writing, 322, 328

Pythagorean Theorem, 362–367

- converse of, 387
- defined, 364
- error analysis, 366
- formula, 364
- practice problems, 366–367
- Pythagorean triple
 - defined, 387
- using, 384–389
 - project, 389
 - real-life application, 386
 - writing, 388

Pythagorean triple

- defined, 387
- formula, 387

Q

Quotient of Powers Property,

456–461

- error analysis, 460
- modeling, 459
- practice problems, 460–461
- real-life application, 459
- writing, 460

Quotient Property of Square Roots,

381

R

Radical sign, defined, 358

Radicand, defined, 358

Range

- of a function, 126–131
 - defined, 126, 128
 - error analysis, 130
 - practice problems, 130–131
 - real-life application, 129

Ratio

- golden, 378–379
- percent, 164
- slope, 70

Rational number(s)

- defined, 370, 372

Reading

- polygons, 212
- square roots
 - simplifying, 380

Real-Life Applications, *Throughout*.

For example see:

- angles
 - of a polygon, 213
- area of a circle, 359
- composite solids, 335
- cones, 287
 - volume of, 327
- cylinders, 273
 - volume of, 315
- equations
 - graphing, 79
 - linear, 65, 79, 85
 - multi-step, 13
 - percent, 165
 - simple, 6
 - solving, 6, 13, 19, 25
 - temperature conversion, 25
 - using a point and slope, 99
 - variables on both sides, 19
 - writing using two points, 105

exponents, 445, 459

functions

- domain, 129
- linear, 143, 149
- nonlinear, 149
- range, 129

inequalities, 47

percents

- equations, 165

polygons, 213

powers, 459

prisms

- volume of, 309

pyramids, 281

- volume of, 321

Pythagorean Theorem, 386

Quotient of Powers Property, 459

slope-intercept form

- graphing, 79
- writing, 93

solids

- pyramids, 321
- surface area of, 273, 281, 287
- volume of, 309, 315, 327, 335

solving

- multi-step equations, 13
- simple equations, 6

square roots, 359

- approximating, 374

standard form

- of linear equations, 85

surface area

- of a cone, 287
- of a cylinder, 273
- of a pyramid, 281

volume

- of a composite solid, 335
- of a cone, 327
- of a cylinder, 315
- of a prism, 309
- of a pyramid, 321

Real number(s)

- classifying, 372
- practice problems, 375–377
- defined, 372

Reasoning, *Throughout*. *For*

example see:

angles

- classifying, 203
- of a polygon, 216
- of a triangle, 208

area

- of a composite figure, 244

composite figures

- area of, 244

composite solids, 294–295

cones, 288–289

- height of, 329
- volume of, 328–329

cylinders

- surface area of, 274
- volume of, 317, 329

data
 analysis, 407
 displaying, 413, 415
 discounts, 180
 equations, 41
 graphing, 86
 linear, 86–87
 percent, 166
 variables on both sides, 21
 exponents, 452
 scientific notation and, 467
 functions
 domain of, 130, 137
 range of, 130
 graphs
 displaying data, 413, 415
 height of a cone, 329
 inequalities, 34, 41, 43
 interest
 simple, 186–187
 lines of best fit, 407
 markups, 180
 percent, 167
 discounts, 180
 equations, 166
 markups, 180
 perfect squares, 361
 polygons
 angles of, 216–217
 transformations of, 232–233
 powers, 452
 prisms, 311
 volume of, 322
 probability, 425
 Product of Powers Property, 452
 pyramids
 height of, 283
 volume of, 322
 scatter plots, 407
 scientific notation, 467
 similar figures, 224
 slope of a line, 73, 112
 slope-intercept form, 112
 solids, 283
 composite, 294–295
 cones, 288–289
 drawing, 263
 similar, 343
 surface area of, 274, 294–295
 volume of, 311, 317
 square roots, 360
 perfect squares, 361

standard form
 of linear equations, 87
 of scientific notation, 467
 surface area
 of similar solids, 343
 transformations, 233
 of a polygon, 232–233
 triangles, 209
 angles of, 208
 similar, 224
 volume
 of a cone, 328–329
 of a cylinder, 328
 of a prism, 322
 of a pyramid, 322
 of similar solids, 343

Reciprocal(s)

writing, 1

Rectangle(s)

perimeter of, 22

Reflection(s)

defined, 228

line of, 228

Regular polygon(s), See also

Polygon(s)

defined, 213

Regular pyramid(s), See also

Pyramid(s)

defined, 280

Rise, See also Slope

defined, 70

Rotation(s)

angle of, 228

center of, 228

defined, 228

Run, See also Slope

defined, 70



Scatter plot(s), See also Data,

Graph(s)

defined, 402, 410

and line of best fit, 400–407

error analysis, 406

practice problems, 405–407

project, 407

writing, 405

Scientific notation, 462–469

defined, 464

error analysis, 467, 468

multiplying numbers in, 466

ordering numbers in, 466
 practice problems, 467–469
 project, 469
 standard form of, 464
 writing numbers in, 465

Similar figures

identifying, 305

indirect measurement, 223

triangles, 220–225

angles of, 222

error analysis, 224

practice problems, 224–225

project, 225

sides of, 305

Similar solids

defined, 340

surface areas of, 338–345

corresponding linear

measures, 341

practice problems, 343–345

volumes of, 338–345

corresponding linear

measures, 342

error analysis, 344

practice problems, 343–345

Similar triangles, See also

Triangle(s), Similar figures

defined, 222

Simple interest, 182–187

defined, 184

error analysis, 186

practice problems, 186–187

principal

defined, 184

writing, 186

Slant height

of a cone, 286

of a pyramid, 280

Slope

defined, 70

formula, 70–71

of a line, 68–75

error analysis, 74

horizontal, 71, 93

parallel, 72

practice problems, 73–75

project, 74

rise, 70

run, 70

writing equations using, 96–101

error analysis, 100

practice problems, 100–101

- real-life applications, 99, 111
- writing, 100
- Slope-intercept form**
 - defined, 78
 - graphing equations in, 76–81
 - error analysis, 80
 - practice problems, 80–81
 - real-life applications, 79, 110
 - intercepts
 - error analysis, 80
 - practice problems, 80–81, 112–113
 - x -intercept, 78
 - y -intercept, 78
 - writing equations in, 90–95
 - error analysis, 94
 - practice problems, 94–95
 - project, 113
 - real-life applications, 93, 110
- Solid(s)**
 - composite
 - defined, 292
 - practice problems, 294–295, 336–337
 - real-life application, 335
 - surface area of, 290–295
 - volume of, 332–337
 - writing, 336
 - cones
 - defined, 260, 284
 - error analysis, 328
 - practice problems, 328–329
 - real-life applications, 287, 327
 - slant height of, 286
 - surface area of, 24, 284–289
 - volume of, 23, 324–329
 - writing, 328
 - cylinders
 - defined, 260
 - error analysis, 274, 316
 - practice problems, 274–275, 316–317
 - real-life applications, 273, 315
 - surface area of, 270–275
 - volume of, 23, 312–317
 - defined, 260
 - drawing, 258–263
 - practice problems, 262–263
 - project, 263
 - writing, 262
 - lateral faces of
 - defined, 260
 - net of, 264
 - oblique
 - volume of, 325
 - polyhedrons
 - defined, 260
 - prisms
 - defined, 260
 - error analysis, 310
 - practice problems, 268–269, 310–311
 - real-life application, 309
 - surface area of, 264–269
 - volume of, 23, 306–311, 381
 - pyramids
 - defined, 260
 - practice problems, 282–283, 322–323
 - real-life applications, 281, 321
 - regular, 280
 - slant height of, 280
 - surface area of, 278–283
 - volume of, 23, 318–323
 - writing, 322, 328
 - research, 263
 - similar
 - corresponding linear measures, 341–342
 - error analysis, 344
 - practice problems, 343–345
 - surface areas of, 338–345
 - volumes of, 338–345
- Solution of an inequality**, *See also* Inequality
 - defined, 32
- Solution of a linear equation**,
 - defined, 64
- Solution set(s)**, *See also* Inequality
 - defined, 32
- Square root(s)**
 - adding, 380
 - writing, 382
 - approximating, 370–377
 - error analysis, 375
 - practice problems, 375–377
 - real-life application, 374
 - writing, 375
 - defined, 358
 - finding, 356–361
 - error analysis, 360
 - practice problems, 360–361
 - real-life application, 359
 - and the golden ratio, 378–379
 - negative, 358
 - perfect squares, 358
 - defined, 358
 - positive, 358
 - Product Property of, 380
 - writing, 382
- Quotient Property of, 381
 - writing, 382
- radical sign
 - defined, 358
- radicand
 - defined, 358
- simplifying, 378–383
 - error analysis, 382
 - practice problems, 382–383
 - reading, 380
- subtracting, 380
 - writing, 382
- of zero, 358
- Standard form**
 - of linear equations, 82–87
 - defined, 84
 - error analysis, 86
 - practice problems, 86–87
 - real-life application, 85
 - of scientific notation, 464
 - error analysis, 467, 468
- Standardized Test Practice
 - angle measure
 - of a triangle, 207
 - equations
 - graphing, 105
 - linear, 93
 - solving, 6, 19
 - variables on both sides, 19
 - writing using two points, 105
 - exponents, 451
 - functions
 - domains of, 135
 - linear and nonlinear, 149
 - inequalities, 47
 - percent
 - of decrease, 171
 - Product of Powers Property, 451
 - Pythagorean Theorem, 365
 - slope-intercept form, 93
 - solids
 - similar, 342
 - surface area of, 292
 - surface area, 292
 - volume
 - of similar solids, 342
- Stem-and-leaf plot(s)
 - defined, 410
- Study Tips
 - angles
 - congruent, 222
 - cones
 - height of, 326
 - volume of, 326

- cylinders
 - volume of, 314
 - data analysis
 - lines of best fit, 404
 - discounts, 178
 - equations
 - linear, 79, 84
 - in slope-intercept form, 79, 92
 - solving, 13
 - in standard form, 84
 - writing with two points, 104
 - exponents, 459, 465
 - expressions
 - simplifying, 459
 - height
 - of a cone, 326
 - of a pyramid, 320
 - inequalities, 38
 - intercepts, 79
 - inverse operations, 38
 - lines of best fit, 404
 - numbers
 - real, 372
 - prisms
 - volume of, 308
 - pyramids
 - height of, 320
 - Quotient of Powers Property, 459
 - real numbers, 372
 - rectangular prism
 - volume of, 308
 - scientific notation, 465–466
 - similar triangles, 222
 - slope of a line
 - horizontal, 71
 - slope-intercept form, 79, 92
 - solids
 - cylinders, 314
 - prisms, 308
 - pyramids, 320
 - similar, 342
 - square root
 - simplifying, 380
 - of zero, 358
 - standard form
 - of linear equations, 84
 - surface area
 - of similar solids, 342
 - transformations, 230
 - triangles
 - hypotenuse of, 364
 - legs of, 364
 - right, 364
 - volume
 - of a cone, 326
 - of a cylinder, 314
 - of a prism, 308
 - of a pyramid, 320
 - of similar solids, 342
 - zero
 - square root of, 358
 - Subtraction
 - of integers, 441
 - Property of Equality, 4–5
 - Property of Inequality, 38
 - Summary triangle, 174, 368
 - Supplementary angles**, *See also* Angle(s)
 - defined, 198, 200
 - Surface area**
 - of a composite solid, 290–295
 - practice problems, 294–295
 - of a cone, 284–289
 - formula, 24, 286
 - practice problems, 288–289
 - real-life application, 287
 - of a cylinder, 270–275
 - error analysis, 274
 - formula, 270, 272
 - practice problems, 274–275
 - real-life application, 273
 - defined, 264
 - of a prism, 264–269
 - formula, 266–267
 - practice problems, 268–269
 - of a pyramid, 278–283
 - practice problems, 282–283
 - real-life application, 281
 - of similar solids, 338–345
 - corresponding linear measures, 341
 - Symbols
 - inequality
 - not greater than, 32
 - radical sign, 358
- T**
- Temperature conversion, 25
 - real-life application, 25
 - Theorem(s)**
 - defined, 362
 - Theoretical probability**, *See also* Probability
 - compared to experimental, 422
 - defined, 420
 - formula, 420
 - practice problems, 423–425
 - writing, 423
- Three dimensional figure(s), *See also* Solid(s)
 - defined, 260
 - drawing, 258–263
 - practice problems, 262–263
 - project, 263
 - research, 263
- Transformation(s)
 - angle of, 228
 - dilation
 - center of, 230
 - defined, 230
 - image, 228
 - of a polygon, 226–233
 - error analysis, 231, 232
 - practice problems, 231–233
 - reflections
 - defined, 228
 - line of, 228
 - rotations, 228
 - center of, 228
 - translations
 - defined, 228
- Translation(s)**, defined, 228
- Trapezoid(s)
 - area of, 22
- Triangle(s)
 - acute, 206
 - angle measures of, 206
 - angles and sides of, 204–209
 - practice problems, 208–209
 - area of, 22
 - formula, 267
 - classifying, 204–209
 - error analysis, 208
 - practice problems, 208–209
 - congruent sides of, 206
 - equiangular
 - defined, 206
 - equilateral
 - defined, 206
 - isosceles
 - defined, 206
 - obtuse, 206
 - Pythagorean Theorem, 362–367
 - converse of, 387
 - error analysis, 366
 - practice problems, 366–367, 388–389
 - project, 389
 - real-life application, 386
 - using, 384–389

- right, 206, 364
 - error analysis, 366
 - hypotenuse of, 364
 - legs of, 364
 - practice problems, 366–367
 - Pythagorean Theorem, 362–369, 384–389
 - sides of, 364
- scalene, 206
- similar, 220–225, 305
 - angles of, 222
 - defined, 222
 - error analysis, 224
 - indirect measurement, 223
 - practice problems, 224–225
 - project, 225
- Two-step inequalities, *See* Inequality

V

Variable(s)

- on both sides of an equation, 16–21
 - error analysis, 20
 - practice problems, 20–21
 - real-life application, 19
 - writing, 20
- dependent, 128
- independent, 128

Vertical angles, *See also* Angle(s)
defined, 201

Volume

- of a composite solid, 332–337
 - practice problems, 336–337
 - real-life application, 335
 - writing, 336
- of a cone, 324–329
 - error analysis, 328
 - formula, 23, 324, 326
 - practice problems, 328–329
 - real-life application, 327
 - writing, 328
- of a cylinder, 23, 312–317
 - error analysis, 316
 - formula, 314
 - practice problems, 316–317
 - real-life application, 315
- defined, 308
- of oblique solids, 325

- of a prism, 23, 306–311
 - error analysis, 310
 - formula, 308
 - practice problems, 310–311
 - real-life application, 309
- of a pyramid, 318–323
 - formula, 23, 320
 - practice problems, 322–323
 - real-life application, 321
 - writing, 322, 328
- of a rectangular prism
 - formula, 381
- of similar solids, 338–345
 - corresponding linear measures, 342
 - error analysis, 344
 - practice problems, 343–345

W

Writing, *Throughout*. For example *see*:

- angles
 - vertical, 202
- composite solids, 336
- data
 - displaying, 414
- data analysis
 - lines of best fit, 405
- discounts, 180
- equations
 - graph of, 94
 - of a line, 94, 100
 - multi-step, 14
 - slope-intercept form, 94
 - variables on both sides, 20
 - writing using a point and slope, 100
 - writing using two points, 106
- events
 - probability of, 431
- formulas
 - of a cone, 328
 - of a pyramid, 328
 - rewriting, 27
- functions
 - domain of, 136
- graphs
 - displaying data, 414
- inequalities, 41
- two-step, 48

- interest rate, 186
- markups, 180
- percents
 - of decrease, 172
 - discounts, 180
 - markups, 180
- powers, 460
- probability, 423
 - of an event, 431
- pyramids
 - volume of, 322, 328
- Pythagorean Theorem, 388
- Quotient of Powers Property, 460
- solids, 262
 - volume of, 336
- square roots, 375, 382
 - Product Property of, 382
 - Quotient Property of, 382
- volume
 - of a composite solid, 336
 - of a cone, 328
 - of a pyramid, 322, 328

X

x-intercept, defined, 78

Y

Y-chart, 28

y-intercept, defined, 78

Z

Zero

- exponents, 444
- square root of, 358

