

# 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, real-life application, or help with avoiding common errors.

## A

### Absolute value, 2–7

- defined, 4
- error analysis, 6
- real-life application, 5

### Addition

- of expressions
    - linear, 86–91
    - modeling, 86–87
  - of integers, 8–15
    - with different signs, 8–11
    - error analysis, 12
    - with the same sign, 8–11
  - Property
    - of Equality, 98
    - of Inequality, 132
    - real-life application, 99
  - of rational numbers, 50–55
    - error analysis, 54
    - real-life application, 53
    - writing, 54, 55, 65
  - to solve inequalities, 130–135
- Addition Property of Equality, 98  
real-life application, 99
- Addition Property of Inequality, 132

### Additive inverse

- defined, 10
- writing, 12

### Additive Inverse Property, 10

### Adjacent angles

- constructions, 270–275
- defined, 272

### Algebra

- equations
    - equivalent, 98
    - modeling, 96–97, 102, 108–109
    - solving, 96–113
    - two-step, 108–113
    - writing, 100, 106, 112
  - expressions
    - linear, 86–91
    - modeling, 86–87, 91
    - simplifying, 80–85
    - writing, 84, 90
  - formulas, *See* Formulas
- Algebra tiles
- equations, 96–97, 102, 108–109
  - expressions, 86–87

### Angle(s)

- adjacent
    - constructions, 270–275
    - defined, 272
  - classifying, 277–278
    - triangles by, 284
  - complementary
    - constructions, 276–281
    - defined, 278
  - congruent
    - defined, 272
    - reading, 284
  - measures
    - of a quadrilateral, 295
    - of a triangle, 288–289
  - naming, 272
    - error analysis, 274
  - sums
    - for a quadrilateral, 295
    - for a triangle, 288–289
  - supplementary
    - constructions, 276–281
    - defined, 278
  - vertical
    - constructions, 270–275
    - defined, 272
- Area, *See also* Surface area
- of a circle, 332–337
    - formula, 334
  - of a composite figure, 338–343

## B

### Biased sample(s), defined, 442

## C

### Center, defined, 318

- Choose Tools, *Throughout. For example, see:*
- angles, 271
  - circles and circumference, 321
  - probability, 406, 426

### Circle(s)

- area of, 332–337
  - formula, 334
- center of, 318
- circumference and, 316–323
  - defined, 319
  - formula, 319
  - research, 323
- defined, 318

- diameter of, 318
- pi, 316, 319
- semicircle, 320

### Circumference

- and circles, 316–323
- defined, 319
- formula, 319
- research, 323

### Common Error

- inequalities, 141
- percent equations, 234

### Complementary angles

- constructing, 276–281
- defined, 278

### Complex fraction, defined, 165

### Composite figure(s)

- area of, 338–343
- defined, 326
- perimeters of, 324–329
  - error analysis, 328

### Compound event(s), *See also*

- Events, Probability
- defined, 424
- error analysis, 426
- writing, 425

### Congruent angles

- defined, 272
- reading, 284

### Congruent sides

- defined, 284
- reading, 284

### Connections to math strands

- Algebra, 13, 19, 27, 32
- Geometry, 91, 101, 113, 175, 245, 366

### Constant of proportionality,

- defined, 200

### Constructions

- angles
    - adjacent, 270–275
    - vertical, 270–275
  - quadrilaterals, 292–297
  - triangles, 282–289
    - error analysis, 286
- Critical Thinking, *Throughout. For example, see:*
- circles, area of, 337
  - composite figures
    - area of, 343
    - perimeter of, 329
  - cylinders, 372
  - discounts, 251

inequalities, 129  
 interest, 257  
 percent  
   of change, 245  
   of decrease, 245  
   of increase, 245  
 prisms, 381  
 probability, 411  
 proportions, 175, 191  
   direct variation, 203  
 pyramids, 366  
 rates, 169  
 rational numbers, 49  
   dividing, 69  
 ratios, 168, 175  
 samples, 444, 445  
 scale drawing, 303  
 scale factor, 304  
 simplifying expressions, 85  
 slant height, 366  
 slope, 197  
 solving equations, 101, 107  
 surface area, 366, 372, 380  
 triangles, 287  
 volume, 380, 381

**Cross products**, defined, 173  
 Cross Products Property, 173

**Cross section(s)**  
 defined, 388  
 of three-dimensional figures,  
 388–389

Cube(s), surface area of, 358

Cylinder(s)  
 cross section of, 388–389  
 surface area of, 368–373  
   error analysis, 372  
   formula, 370  
   real-life application, 371

## D

Decimal(s)  
 comparing  
   fractions with, 220–225  
   percents with, 220–225  
   real-life application, 222  
 ordering  
   with fractions, 220–225  
   with percents, 220–225  
   real-life application, 223  
 percents as, 214–219  
   error analysis, 218  
   modeling, 214–215  
   real-life application, 217  
 repeating  
   defined, 46  
   error analysis, 48  
   writing, 48

terminating  
   defined, 46  
   writing, 48  
 writing  
   as fractions, 47  
   as percents, 215–216  
   rational numbers as, 46

**Dependent events**, *See also* Events,  
 Probability

defined, 431  
 error analysis, 434  
 formula, 431  
 writing, 433

**Diameter**, defined, 318

**Different Words, Same Question**,  
*Throughout. For example,*  
*see:*

adding rational numbers, 54  
 area of a circle, 336  
 constructing triangles, 286  
 direct variation, 202  
 inequalities, 128  
 linear expressions, 90  
 percent equations, 236  
 probability, 433  
 subtracting integers, 18  
 surface area of a prism, 359

**Direct variation**, 198–203  
 constant of proportionality, 200  
 defined, 200  
 error analysis, 202  
 modeling, 203  
 real-life application, 201  
 writing, 202

**Discount(s)**, 246–251

defined, 248  
 writing, 250

Division

equations  
   modeling, 102  
   real-life application, 105  
   solving by, 102–107  
 of integers, 28–33  
   with different signs, 28–30  
   error analysis, 32  
   reading, 32  
   real-life application, 31  
   with the same sign, 28–30  
   writing, 32

Property

of Equality, 104  
 of Inequality, 140–141  
   real-life application, 105  
 of rational numbers, 64–69  
   error analysis, 68  
   real-life application, 67  
   writing, 65, 68  
 to solve inequalities, 138–145

Division Property of Equality, 104  
 Division Property of Inequality,  
 140–141  
 error analysis, 144

## E

Equality

Addition Property of, 98  
 Division Property of, 104  
 Multiplication Property of, 104  
 Subtraction Property of, 98

Equation(s)

addition, 96–101  
   error analysis, 100  
   modeling, 96–97  
   writing, 100  
 division, 102–107  
   modeling, 102  
   real-life application, 105  
 equivalent, 98  
 multiplication, 102–107  
   error analysis, 106  
   writing, 106  
 percent, 232–237  
   error analysis, 236  
   real-life application, 235  
 percent proportions, 226–231  
   error analysis, 230  
   real-life application, 229  
   writing, 230  
 subtraction, 96–101  
   modeling, 96–97  
   real-life application, 99  
 two-step  
   error analysis, 112  
   modeling, 108–109  
   real-life application, 111  
   solving, 108–113  
   writing, 112, 113

**Equivalent equations**

defined, 98  
 writing, 100

**Error Analysis, Throughout. For**  
*example, see:*

absolute value, 6  
 classifying triangles, 286  
 decimals, as percents, 218  
 direct variation, 202  
 equations  
   solving, 100, 106  
   two-step, 112  
 expressions  
   like terms of, 84  
   linear, 91  
 inequalities  
   solving, 134, 143, 144, 150  
   writing, 128

- integers
  - adding, 12
  - dividing, 32
  - multiplying, 26
  - subtracting, 18
- naming angles, 274
- outcomes, 404
- percent
  - equations, 236
  - of increase, 244
  - proportions, 230
- perimeter of a composite figure, 328
- prisms
  - surface area, 360
  - volume of, 380
- probability, 410
  - dependent events, 434
  - Fundamental Counting Principle, 426
  - outcomes, 404
- proportions
  - direct variation, 202
  - percent, 230
  - solving, 190
  - writing, 182
- rational numbers
  - adding, 54
  - decimal representation of, 48
  - dividing, 68
  - multiplying, 68
  - subtracting, 62
- scale drawings, 303
- simple interest, 256
- slope, 196
- surface area
  - of a cylinder, 372
  - of a prism, 360
  - volume of a prism, 380
- Event(s)**, *See also* Probability
  - compound, 420–427
    - defined, 424
  - defined, 402
  - dependent, 428–435
    - defined, 431
    - error analysis, 434
    - writing, 433
  - independent, 428–435
    - defined, 430
    - writing, 433
  - outcomes of, 402
  - probability of, 406–411
    - defined, 408
    - error analysis, 410
- Example and non-example chart, 290

- Experiment(s)**
  - defined, 402
  - outcomes of, 400–405
  - project, 453
  - reading, 402
  - simulations, 436–437
    - defined, 436
- Experimental probability**, 412–419
  - defined, 414
  - formula, 414
- Expression(s)
  - algebraic
    - error analysis, 84
    - like terms, 82
    - modeling, 85
    - real-life application, 83
    - simplest form of, 82
    - simplifying, 80–85
    - writing, 84
  - factoring, 92–93
    - defined, 92
  - linear
    - adding, 86–91
    - defined, 88
    - error analysis, 91
    - modeling, 86–87, 91
    - real-life application, 89
    - subtracting, 86–91
    - writing, 90

## F

- Factoring an expression**, 92–93
  - defined, 92
- Favorable outcome(s)**, defined, 402
- Formulas
  - angles
    - sum for a quadrilateral, 295
    - sum for a triangle, 288
  - area
    - of a circle, 334
    - of a parallelogram, 341
    - of a rectangle, 341
    - of a semicircle, 341
    - of a triangle, 341
  - circumference, 319
  - pi, 316
  - probability
    - dependent events, 431
    - of an event, 408
    - experimental, 414
    - independent events, 430
    - relative frequency, 412
    - theoretical, 415
  - surface area
    - of a cube, 358
    - of a cylinder, 370

- of a prism, 357
- of a pyramid, 364
- of a rectangular prism, 356
- volume
  - of a cube, 378
  - of a prism, 378
  - of a pyramid, 384
- Four square, 94
- Fraction(s)
  - comparing
    - decimals with, 220–225
    - percents with, 220–225
    - real-life application, 222
  - complex, defined, 165
  - decimals as
    - error analysis, 48
    - writing, 47
  - ordering
    - with decimals, 220–225
    - with percents, 220–225
    - real-life application, 223
- Fundamental Counting Principle**
  - defined, 422
  - error analysis, 426
  - writing, 425

## G

- Geometry
  - angles
    - adjacent, 270–275
    - complementary, 276–281
    - congruent, 272
    - constructing, 270–281
    - error analysis, 274
    - supplementary, 276–281
    - vertical, 250–275
  - circles
    - area of, 332–337
    - center of, 318
    - circumference, 316–323
    - diameter, 318
    - radius, 318
    - semicircles, 320
  - composite figures
    - area of, 338–343
    - perimeter of, 324–329
  - constructions and drawings, 270–289, 292–305
  - pi, 316
  - quadrilaterals, 294
    - constructing, 292–297
    - defined, 292
    - kite, 294
    - parallelogram, 294, 341
    - rectangle, 294, 341
    - rhombus, 294

- square, 294
- trapezoid, 294
- surface area
  - of a cylinder, 368–373
  - of a prism, 354–361
  - of a pyramid, 362–367
  - of a rectangular prism, 356
- trapezoids, 294
- triangles
  - area of, 341
  - classifying, 284
  - congruent sides, 284
  - constructing, 282–287
  - volume of a prism, 376–381

**Graph of an inequality**, defined, 127

Graphic Organizers

- example and non-example chart, 290
- four square, 94
- idea and examples chart, 20
- information frame, 374
- information wheel, 184
- notetaking organizer, 438
- process diagram, 56
- summary triangle, 238
- word magnet, 330
- Y chart, 136

Graphing

- inequalities, 124–129
  - defined, 127
- proportional relationships, 176–177

## I

Idea and examples chart, 20

**Independent events**, *See also*

- Events, Probability
- defined, 430
- formula, 430
- writing, 433

**Inequality**

- Addition Property of, 132
- defined, 126
- Division Property of, 140–141
- graphing, 124–129
  - defined, 127
- Multiplication Property of, 140–141
- solution of
  - defined, 126
  - reading, 133
- solution set of
  - defined, 126
- solving two-step, 146–151
  - error analysis, 150

- real-life application, 149
- writing, 150
- solving using addition, 130–135
  - error analysis, 134
  - real-life application, 133
  - writing, 130
- solving using division, 138–145
  - error analysis, 144
  - project, 145
  - writing, 139
- solving using multiplication, 138–145
  - error analysis, 143
  - project, 145
  - writing, 139, 143
- solving using subtraction, 130–135
  - error analysis, 134
  - writing, 130
- Subtraction Property of, 132
- symbols, 126
  - reading, 133
  - writing, 124–129
    - error analysis, 128
    - modeling, 129
- Information frame, 374
- Information wheel, 184

**Integer(s)**

- absolute value of, 2–7
  - error analysis, 6
  - real-life application, 5
- adding, 8–15
  - with different signs, 8–11
  - error analysis, 12
  - with the same sign, 8–11
- additive inverse of, 10
  - writing, 12
- defined, 4
- dividing, 28–33
  - with different signs, 28–30
  - error analysis, 32
  - reading, 32
  - real-life application, 31
  - with the same sign, 28–30
  - writing, 32
- multiplying, 22–27
  - with different signs, 22–24
  - error analysis, 26
  - modeling, 27
  - real-life application, 25
  - with the same sign, 22–24
  - writing, 26
- subtracting, 14–19
  - error analysis, 18
  - real-life application, 17
  - writing, 18

**Interest**

- defined, 254
- principal, 254
- simple, 252–257
  - defined, 254
  - error analysis, 256
- writing, 256

## K

**Kite**, defined, 294

## L

**Lateral surface area**, defined, 358

**Like terms**

- defined, 82
- error analysis, 84
- writing, 84

**Linear expression(s)**

- adding, 86–91
  - modeling, 86–87, 91
  - writing, 90
- factoring, 92–93
- subtracting, 86–91
  - error analysis, 91
  - modeling, 87
  - real-life application, 89
  - writing, 90

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

- absolute value, 3
- angles, 281
- circles, 323
- circumference, 323
- constructing a triangle, 287
- inequalities
  - solving, 145
  - writing, 129
- linear expression, 91
- percent equations, 237
- prisms, 381
- probability
  - dependent events, 434
  - experimental, 417
  - independent events, 434
  - theoretical, 417
- samples, 445

## M

**Markup(s)**, 246–251

- defined, 248
- writing, 250

Meaning of a Word

- adjacent, 270
- opposite, 10
- proportional, 170

rate, 162  
rational, 44  
Mental Math, *Throughout*. For  
*example, see:*  
integers  
adding, 13  
subtracting, 19  
proportions, 181  
Modeling, *Throughout*. For  
*example, see:*  
decimals as percents, 214–215  
direct variation, 203  
expressions  
algebraic, 85  
linear, 86–87, 91  
inequalities, 129  
multiplying integers, 27  
percents as decimals, 214–215  
probability, 418  
scale models, 305  
solutions of equations, 96–97,  
102  
Multiplication  
equations, solving by, 102–107  
inequalities, solving by, 138–145  
of integers, 22–27  
with different signs, 22–24  
error analysis, 26  
modeling, 27  
real-life application, 25  
with the same sign, 22–24  
writing, 26  
Property  
of Equality, 104  
of Inequality, 140–141  
of rational numbers, 64–69  
error analysis, 68  
writing, 65, 68  
Multiplication Property of Equality,  
104  
Multiplication Property of  
Inequality, 140–141  
error analysis, 143

## N

Notetaking organizer, 438  
Number Sense, *Throughout*. For  
*example, see:*  
adding rational numbers, 55  
fractions  
comparing percents with, 224  
ordering percents and, 225  
inequalities, 135, 145  
integers  
adding, 12  
dividing, 33  
multiplying, 27

percents  
comparing fractions with, 224  
of increase, 244  
ordering fractions and, 225  
proportions, 230  
probability, 418  
proportions, 190, 230  
reciprocals, 68  
slope, 197  
solving equations, 107  
statistics, 453  
surface area of a prism, 361

## O

Open-Ended, *Throughout*. For  
*example, see:*  
absolute value, 7  
angles, 275, 281  
area of a composite figure, 342  
composite figures, 328  
inequalities, 143, 150  
integers, 7  
adding, 13  
dividing, 32  
multiplying, 26  
opposite, 18  
subtracting, 19  
inverse operations, 106  
percents as decimals, 218  
probability, 410  
compound events, 425  
theoretical, 417  
proportions  
solving, 190  
writing, 174, 182  
rates, 167  
rational numbers  
adding, 54  
decimal representation of, 49  
multiplying, 69  
subtracting, 63  
ratios, 174  
scale factor, 304  
solving equations, 107  
surface area of a prism, 360  
volume  
of a prism, 381  
of a pyramid, 386, 387  
**Opposites**, defined, 10  
**Outcomes**, *See also* Events,  
Probability  
counting, 403  
error analysis, 404  
defined, 402  
experiment, 402  
favorable, 402

reading, 402  
writing, 404

## P

Parallelogram(s)  
area of, 341  
defined, 294  
Patterns, *Throughout*. For *example,*  
*see:*  
dividing integers, 33  
Percent(s)  
of change, 242  
comparing  
decimals with, 220–225  
fractions with, 220–225  
real-life application, 222  
as decimals, 214–219  
error analysis, 218  
modeling, 214–216  
real-life application, 217  
of decrease, 240–245  
equation, 232–237  
error analysis, 236  
real-life application, 235  
error, 243  
of increase, 240–245  
ordering  
with decimals, 220–225  
with fractions, 220–225  
real-life application, 223  
proportions, 226–231  
error analysis, 230  
real-life application, 229  
writing, 230  
research, 219  
**Percent of change**  
defined, 242  
formula, 242  
**Percent of decrease**  
defined, 242  
formula, 242  
writing, 244  
**Percent error**  
defined, 243  
formula, 243  
**Percent of increase**  
defined, 242  
error analysis, 244  
formula, 242  
Perimeter(s)  
of composite figures, 324–329  
error analysis, 328  
**Pi**  
defined, 319  
formula, 316

- Polygon(s)  
 kite, 294  
 parallelogram, 294  
 quadrilateral, 292–297, 294  
 rectangle, 294, 341  
 rhombus, 294  
 square, 294  
 trapezoid, 294  
 triangle, 282–289
- Population(s)**, 440–453  
 comparing, 448–453  
   project, 453  
   writing, 452  
 defined, 440  
 research, 441  
 samples, 440–447  
   biased, 442  
   defined, 440  
   unbiased, 442
- Precision, *Throughout*. For  
*example, see:*  
 constructing angles, 275, 281  
 inequalities  
   graphing, 128  
   solving, 143  
 ordering fractions, decimals,  
   and percents, 225  
 outcomes, 405  
 percents  
   of change, 245  
 prisms, 381  
 rates, 169  
 rational numbers  
   dividing, 69  
   multiplying, 65
- Prices  
 discounts and markups, 246–251  
   defined, 248  
   writing, 250
- Principal**, defined, 254
- Prism(s)  
 cross section of, 388  
 surface area of, 354–361  
   error analysis, 360  
   formula, 357  
   real-life application, 358  
   rectangular, 356  
   writing, 359  
 volume of, 376–381  
   error analysis, 380  
   formula, 378  
   real-life application, 379  
   rectangular, 376  
   writing, 386
- Probability**, 406–419  
 defined, 408  
 error analysis, 410  
 events, 400–405  
   compound, 420–427  
   dependent, 428–435  
   error analysis, 434  
   independent, 428–435  
   writing, 433  
 of events  
   defined, 408  
   formula for, 408  
 experimental, 412–419  
   defined, 414  
   formula, 414  
 experiments  
   defined, 402  
   reading, 402  
   simulations, 436–437
- Fundamental Counting  
 Principle, 422  
 error analysis, 426
- outcomes, 400–405  
 defined, 402  
 error analysis, 404  
 favorable, 402  
 reading, 402  
 writing, 404
- project, 419  
 research, 427  
 sample space, 422  
 theoretical, 412–419  
   defined, 415  
   formula, 415  
   modeling, 418  
 writing, 425
- Problem Solving, *Throughout*. For  
*example, see:*  
 adding integers, 13  
 angles, 281  
 circumference, 323  
 decimals as percents, 219  
 equations, two-step, 113  
 inequalities, two-step, 151  
 percent proportions, 231  
 probability, 427, 435  
 proportions, 191  
 rational numbers, 49  
 simple interest, 257  
 surface area, 367  
 volume, 387
- Process diagram, 56
- Properties  
 Addition Property of Equality, 98  
   real-life application, 99
- Addition Property of Inequality,  
 132  
 Additive Inverse Property, 10  
 Cross Products Property, 173  
 Division Property of Equality,  
 104  
 Division Property of Inequality,  
 140–141  
   error analysis, 144  
 Multiplication Property of  
 Equality, 104  
 Multiplication Property of  
 Inequality, 140–141  
   error analysis, 143  
 Subtraction Property of Equality,  
 98  
 Subtraction Property of  
 Inequality, 132  
   real-life application, 133
- Proportion(s)**, 170–175  
 cross products, 173  
 Cross Products Property, 173  
 defined, 173  
 percent, 226–231  
   error analysis, 230  
   real-life application, 229  
   writing, 230  
 scale and, 300  
 solving, 186–191  
   error analysis, 190  
   real-life application, 189  
   writing, 190  
 writing, 178–183  
   error analysis, 182
- Proportional**  
 defined, 172  
 relationship  
   constant of proportionality,  
   200  
   direct variation, 198–203  
   error analysis, 202  
   graphing, 176–177  
   modeling, 203  
   reading, 172  
   real-life application, 201  
   writing, 202
- Pyramid(s)  
 cross section of, 388  
 regular, 364  
 slant height, 364  
 surface area of, 362–367  
   formula, 364  
   real-life application, 365  
 volume of, 382–387  
   formula, 384  
   real-life application, 385  
   writing, 386

**Q**

Quadrilateral(s), 292–297  
 classifying, 294  
 constructions, 292–297  
   reading, 294  
 defined, 292  
 kite, 294  
 parallelogram, 294, 341  
 rectangle, 294, 341  
 rhombus, 294  
 square, 294  
 sum of angle measures, 295  
 trapezoid, 294

**R**

**Radius**, defined, 318

**Rate(s)**

defined, 164  
 ratios and, 162–169  
 research, 169  
 unit rate  
   defined, 164  
   writing, 167

**Ratio(s)**, *See also* Proportions, Rates

complex fraction, 165  
 defined, 164  
 proportions and, 170–189  
   cross products, 173  
   Cross Products Property, 173  
   error analysis, 182, 190  
   proportional, 172  
   real-life application, 189  
   solving, 186–191  
   writing, 178–183  
 rates and, 162–169  
   complex fractions, 165  
   writing, 167  
 scale and, 300  
 slope, 192–197  
   error analysis, 196

**Rational number(s)**, *See also*

Fractions, Decimals  
 adding, 50–55  
   error analysis, 54  
   real-life application, 53  
   writing, 54, 55, 65  
 defined, 44, 46  
 dividing, 64–69  
   error analysis, 68  
   real-life application, 67  
   writing, 65, 68  
 multiplying, 64–69  
   error analysis, 68  
   writing, 65, 68  
 ordering, 47

repeating decimals  
   defined, 46  
   error analysis, 48  
   writing, 46  
 subtracting, 58–63  
   error analysis, 62  
   real-life application, 61  
   writing, 62  
 terminating decimals  
   defined, 46  
   writing, 46  
 writing as decimals, 46

**Reading**

congruent angles, 284  
 congruent sides, 284  
 experiments, 402  
 inequalities  
   solving, 133  
   symbols of, 126  
 outcomes, 402  
 proportional relationship, 172  
 quadrilaterals, 294

**Real-Life Applications**, *Throughout.*

*For example, see:*

absolute value, 5  
 decimals, 217, 222, 223  
 direct variation, 201  
 expressions  
   linear, 89  
   simplifying, 83  
 fractions, 217, 222, 223  
 integers  
   dividing, 31  
   multiplying, 25  
   subtracting, 17  
 percent, 217, 222, 223  
 equations, 235  
 proportions, 229  
 proportions, 189, 229  
 rational numbers  
   adding, 53  
   dividing, 67  
   subtracting, 61  
 solving equations, 99, 105, 111  
 solving inequalities, 133, 149  
 surface area  
   of a cylinder, 371  
   of a prism, 358  
   of a pyramid, 365  
 volume  
   of a prism, 379  
   of a pyramid, 385

**Reasoning**, *Throughout. For*

*example, see:*

absolute value, 7  
 angles  
   adjacent, 280  
   complementary, 280, 281

congruent, 275  
 constructing, 275  
 supplementary, 280, 281  
 circles, 322  
 circumference, 322  
 composite figures  
   area of, 342  
   perimeter of, 328  
 cones, 389  
 cross sections  
   of a cone, 389  
   of a prism, 388  
 direct variation, 203  
 expressions  
   linear, 91  
   simplifying, 81, 84, 85  
 inequalities, 128  
   solving, 134, 135, 151  
 integers  
   multiplying, 27  
   subtracting, 19  
 markups, 250  
 percents  
   discount and markups, 250  
   equations, 236  
   of increase, 245  
   proportions, 231  
 probability, 410  
   experimental, 417, 419  
   simulations, 437  
   theoretical, 419  
 proportions  
   proportional relationships,  
     177, 203  
   solving, 191  
   writing, 183  
 quadrilaterals, 293, 296  
 rational numbers  
   adding, 55  
   subtracting, 63  
 scale factor, 303  
 scale models, 304  
 simple interest, 256, 257  
 slope, 196  
 solving equations, 107, 113  
 statistics  
   comparing populations, 452  
   samples, 445, 447  
 surface area, 367  
   of a cylinder, 373  
   of a prism, 355  
   of a pyramid, 363  
 triangles  
   angle measures of, 289  
   constructions, 283  
 volume  
   of a prism, 387  
   of a pyramid, 386, 387

Rectangle(s)  
 area of, formula, 341  
 defined, 294  
**Regular pyramid**, defined, 364  
**Relative frequency**, *See also*  
 Probability  
 defined, 412  
 formula, 412  
 Repeated Reasoning, *Throughout*.  
*For example, see:*  
 adding rational numbers, 55  
 circles  
 area, 337  
 circumference, 337  
 cylinders, 373  
 probability, 427  
 slope, 193  
 solving equations, 109  
 surface area, 373  
**Repeating decimal(s)**  
 defined, 46  
 error analysis, 48  
 writing, 48  
 Rhombus, defined, 294

**S**

**Sample(s)**, 440–447  
 biased, 442  
 defined, 440  
 research, 441  
 unbiased, 442  
**Sample space**, defined, 422  
**Scale**  
 defined, 300  
 research, 299  
**Scale drawing**, 298–305  
 defined, 300  
 error analysis, 303  
 research, 299  
 scale, 300  
 scale factor, 301  
**Scale factor**  
 defined, 301  
 finding, 301  
**Scale model**  
 defined, 300  
 finding distance in, 301  
 modeling, 305  
**Semicircle(s)**  
 area of, 341  
 defined, 320  
 Side(s)  
 classifying triangles by, 284  
 congruent, 284  
 defined, 284  
 reading, 284

**Simple interest**, 252–257  
 defined, 254  
 error analysis, 256  
 writing, 256  
**Simplest form**, defined, 82  
**Simulation(s)**, 436–437  
 defined, 436  
**Slant height**, defined, 364  
**Slope**, 192–197  
 defined, 194  
 error analysis, 196  
 Solids, *See also*: Surface area,  
 Three-dimensional figures,  
 Volume  
 cross section, 388–389  
 cube, 358  
 cylinder, 368–373  
 prism, 354–361, 376–381  
 pyramid, 362–367, 382–387  
**Solution of an inequality**, defined,  
 126  
**Solution set**, defined, 126  
 Square, defined, 294  
 Statistics, *See also* Probability  
 populations, 440–453  
 comparing, 448–453  
 defined, 440  
 project, 453  
 research, 441  
 writing, 452  
 samples, 440–447  
 biased, 442  
 defined, 440  
 research, 441  
 unbiased, 442  
 Structure, *Throughout*. *For*  
*example, see:*  
 angles, 275  
 composite figures, 343  
 direct variation, 199  
 expressions  
 factoring, 93  
 linear, 91  
 simplifying, 85  
 integers  
 adding, 9  
 dividing, 29  
 multiplying, 23  
 subtracting, 15  
 parallelograms, 297  
 percent proportions, 231  
 probability, 435  
 solving equations, 97  
 subtracting rational numbers, 63  
 surface area of a prism, 361  
 volume  
 of a prism, 377  
 of a pyramid, 383

Study Tip  
 additive inverse, 11  
 amount of error, 243  
 circumference, 319  
 comparing populations, 450  
 constructing triangles, 285  
 cross products, 173  
 decimal points, 216  
 direct variation, 200  
 discounts, 248  
 exponents, 25  
 expressions  
 linear, 89  
 simplifying, 82  
 inequalities  
 graphing, 127  
 solving, 132  
 opposites, 11  
 ordering decimals and percents,  
 222  
 percent proportions, 228  
 powers, 25  
 prisms, 378  
 probability, 408  
 Fundamental Counting  
 Principle, 422  
 simulating outcomes, 436,  
 437  
 proportional relationships, 177  
 pyramids, 384  
 volume of, 384  
 quadrilaterals, 294  
 radius, 319  
 rational numbers, 47, 52  
 ratios, 302  
 scale, 300  
 scale drawings, 302  
 simplifying equations, 110  
 slope, 194  
 squares, 294  
 volume  
 of a prism, 378  
 of a pyramid, 384  
 Subtraction  
 of expressions  
 error analysis, 91  
 linear, 86–91  
 modeling, 87  
 real-life application, 89  
 of integers, 14–19  
 error analysis, 18  
 real-life application, 17  
 writing, 18  
 Property  
 of Equality, 98  
 of Inequality, 132



- of rational numbers, 58–63
  - error analysis, 62
  - real-life application, 61
  - writing, 62
- to solve inequalities, 130–135
- Subtraction Property of Equality, 98
- Subtraction Property of Inequality, 132
  - real-life application, 133
- Summary triangle, 238
- Supplementary angles**
  - constructing, 276–281
  - defined, 278
- Surface area
  - of a cylinder, 368–373
    - error analysis, 372
    - formula, 370
    - real-life application, 371
  - formula, 357
    - cylinders, 370
    - prism, 357
    - pyramid, 364
    - rectangular prism, 356
  - lateral, defined, 358
  - of a prism, 354–361
    - cube, 358
    - error analysis, 360
    - formula, 357
    - real-life application, 358
    - rectangular, 356
    - triangular, 357
    - writing, 359
  - of a pyramid, 362–367
    - formula, 364
    - real-life application, 365
- Symbols of inequality, 126

## T

- Term(s)
  - like, 82
    - error analysis, 84
    - writing, 84
- Terminating decimal**
  - defined, 46
  - writing, 48
- Theoretical probability**, *See also* Probability
  - defined, 415
  - formula, 415
  - modeling, 418
- Three-dimensional figure(s), 388–389
  - cross sections of, 388
- Trapezoid, defined, 294

- Triangle(s)
  - acute, 284
  - area of, formula, 341
  - classifying
    - by angles, 284
    - error analysis, 286
    - by sides, 284
    - writing, 286
  - congruent sides, 284
  - constructing, 282–287
  - equiangular, 284
  - equilateral, 284
  - isosceles, 284
  - obtuse, 284
  - right, 284
  - scalene, 284
  - sum of angle measures, 288–289
- Two-step inequalities, *See* Inequality

## U

- Unbiased sample(s)**, defined, 442
- Unit rate**
  - defined, 164
  - writing, 167

## V

- Vertical angles**
  - constructions, 270–275
  - defined, 272
  - error analysis, 274
- Volume
  - of a prism, 376–381
    - error analysis, 380
    - formula, 378
    - real-life application, 379
    - rectangular, 376
  - writing, 386
  - of a pyramid, 382–387
    - formula, 384
    - real-life application, 385
    - writing, 386

## W

- Which One Doesn't Belong?, *Throughout. For example, see:*
  - absolute value, 6
  - circles, 321
  - comparing fractions, decimals, and percents, 218, 224
  - dividing integers, 32
  - inequalities, 134

- percent proportions, 230
- pyramids, 366
- quadrilaterals, 296
- rational numbers, 62
- ratios, 174
- solving equations, 100
- Word magnet, 330
- Writing, *Throughout. For example, see:*
  - comparing populations, 452
  - decimals
    - repeating, 48
    - terminating, 48
  - discounts, 250
  - equations
    - equivalent, 100
    - solving, 106
    - two-step, 112, 113
  - expressions
    - algebraic, 84
    - linear, 90
  - integers
    - additive inverse of, 12
    - dividing, 32
    - multiplying, 26
    - subtracting, 18
  - interest rate, 256
  - markups, 250
  - percents
    - of decrease, 244
    - proportions, 230
  - probability
    - events, 433
    - Fundamental Counting Principle, 425
    - outcomes, 404, 425
  - proportions, 182
    - solving, 190
  - rates, 167
  - rational numbers
    - adding, 54, 55, 65
    - dividing, 65, 68
    - multiplying, 65, 68
    - subtracting, 62, 65
  - solving inequalities, 139, 143, 150
  - surface area of a prism, 359
  - triangles, classifying, 286
  - volume
    - of a prism, 386
    - of a pyramid, 386

## Y

- Y chart, 136