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1. a) Addi	ition (+)
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- b) Subtraction (-)
- c) Multiplication (\times)
- d) Multiplication (\times)

e) Division (\div)

- f) Division (÷)
- g) Subtraction (-)

2.	a) 23	b) 27	c) 8	d) 4	e) 8	f) 17
	g) 4	h) 24	i) 2	j) 33	k) 7	l) 46

Set B

1.	¹ 90	It will take Teresa 357 minutes to watch the three movies
	120	
	<u>+147</u>	
	357	

- 2. $8 \times 40 = 320$ Celio will earn \$320 in one week
- 3. 150 139 = 11 Rosa only lost 11 pounds. She needs to lose 4 more pounds to reach her goal. 15 - 11 = 4
- 4. $121\overline{)1331}$ 1331 yen is worth 11 dollars.
 - $-\frac{121}{121}$ $-\frac{121}{0}$

Math On the Move



- 1. 15 18 = -3. The Bills lost 3 yards
- 2. -12 + 3 = -9. The change in the stock was -9.

3.	35 ×1000 -350	Cost to make _1000 crates	.50 ×500 250	Money earned selling 500 crates	-350 + 250 = -100.	Earl lost \$100.
4.	a) -6		b) -22	c) 7	d)	-4
	e) 18		f) -28	g) -12	h)	-16

Set B

1. The answer will be positive. The absolute value of a number is always positive.

2. Answers will vary.

3. 300 + 20 = 320 Carlos does have enough to pay his debts. He will have \$445 left over. 320 - 25 = 295 295 + 1500 = 1795 1795 - 400 = 13951395 - 950 = 445

Answers to Practice Problems – Lesson 3

Set A

1.	a) -21	b) 57	c) -18	d) 4
	e) -3	f) 3	g) -4	h) 9

2.	a) 4	b) 16	c) 144	d) 343
	e) 27	f) 64	g) 0	h) 729

- The pattern is alternating between -1 and +1. If the exponent is an even number, the answer is
 +1. If the exponent is an odd number, the answer is -1.
- **2.** a) 10×2 b) 10×2^2 c) 10×2^3 d) 10×2^9 e) $10 \times 2^{n-1}$
- 3. $47829174189^0 = 1$. Anything raised to the zero power is 1.

Answers to Practice Problems – Lesson 4

Set A

- 1. False. The factors of 24 are 1, 2, 3, 4, 6, 8, 12, and 24. The numbers, 4, 6, 8, 12, and 24 are not prime, they are composite.
- 2. a) $55 = 5 \times 11$ b) $63 = 7 \times 3 \times 3$ c) $144 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$ d) $210 = 2 \times 3 \times 5 \times 7$

3.	a) GCF = 1	b) GCF = 33	c) GCF = 26	d) GCF = 46
	LCM = 15	LCM = 330	LCM = 910	LCM = 8050
	e) GCF = 1	f) GCF = 1	g) GCF = 2	h) GCF = 12
	LCM = 312	LCM = 1722	LCM = 4900	LCM = 120

Set B

1. Yes. The greatest common factor is 1. Every positive whole number has a factor of 1; therefore, every positive whole number has a greatest common factor.

2. The GCF is 12. The LCM is $3 \times 3 \times 2 \times 2 \times 5 \times 7 = 1260$.



3. Multiples of a number are found by multiplying that number by any whole number. Because there are an infinite number of whole numbers, there can be an infinite number of multiples.

Answers to Practice Problems – Lesson 5

Set A

1. a) Choice A. $\left(\frac{2}{4}\right)$ is not equivalent to $\frac{2}{3}$ 2. a) $\frac{8}{16} = \frac{1}{2}$ b) $\frac{12}{18} = \frac{2}{3}$ c) simplest form d) simplest form

Set B

1. Just as there are an infinite number of multiples for a number, there are an infinite number of equivalent forms for any fraction. This is because you can find multiples of the numerator and denominator



3. If the numerator is greater than the denominator, the fraction is improper. It means that you have more than one whole. For example, if you had $\frac{4}{3}$ of something, you would have 1 whole of



Answers to Practice Problems – Lesson 6

Set A

1.	a) $\frac{5}{7}$	b) $\frac{1}{9}$	c) $\frac{17}{20}$	d) $\frac{7}{60}$
2.	a) $\frac{7}{16}$	b) $\frac{3}{4}$	c) $\frac{1}{18}$	d) $\frac{13}{25}$

Set B

1. Melissa is not right, because she added both the numerators and the denominators. To answer this problem, she must find a common denominator of the two fractions, and then she can add

them.
$$\frac{1}{3} + \frac{1}{4} = \frac{4}{12} + \frac{3}{12} = \frac{7}{12}$$

2. $\frac{1}{2} \div \frac{1}{6} = \frac{1}{2} \times 6 = 3$. It would take 3 grapevines to fill a half-gallon bucket. Thus, it would take $3 \times 3 = 9$ grapevines to fill 3 half-gallon buckets.

Math On the Move

3. $9 \div \frac{3}{4} = 9 \times \frac{4}{3} = 12$. There would be 12 lots. If the number of acres is doubled, the number of lots would be doubled. Thus, there would be 24 lots of land.

Answers to Practice Problems – Lesson 7

- Set A
- 1. a) $2\frac{1}{2} = \frac{5}{2}$ b) $1\frac{7}{8} = \frac{15}{8}$ c) $4\frac{14}{15} = \frac{74}{15}$ d) $\frac{78}{3} = 26$ 2. a) $2\frac{5}{6}$ b) $\frac{81}{10} = 8\frac{1}{10}$ c) $\frac{7}{12}$ d) $\frac{48}{35} = 1\frac{13}{35}$ e) $\frac{553}{40} = 13\frac{33}{40}$ f) $\frac{3}{2} = 1\frac{1}{2}$

Set B

- 1. $3\frac{1}{4} < 3\frac{1}{2} < \frac{15}{4}$
- 2. $3\frac{2}{3} = \frac{11}{3}$ $\frac{11}{3} \div \frac{1}{3} = \frac{11}{3} \times 3 = 11$. No, you only have enough grapes to give to 11 aunts and uncles.
- 3. Usually, multiplying is easier because you do not have to find a common denominator. If a common denominator is already present, then adding is easier



1. Four thousand, seven hundred fifty-six and ten thousand, nine hundred seventy-four hundred

	thousandths.	$4756 \frac{5487}{50,000}$	23'	7,805,487 50,000		
2.	a) $3.425 < 6.425$ c) $0.001 < 0.01$		b) (1.089 < 1.1 142.284756 > 14	42.284755	
3.	a) 7.43232 ≈ 7.4	3	b) 14.2672	39 ≈ 14.27	c) 9.473 ≈ 9.47	
	d) 1.1111111111	≈ 1.11	e) 0.98776	554 ≈ 0.99	f) $3.\overline{8} = 3.88\overline{8} \approx 3.8$	9

Set B

1. 24971894781.34 32.823743239

- 2. a) 1 quarter = \$0.25 b) 4 nickels = \$0.20 c) 89 pennies = \$0.89 d) 14 dimes = \$1.40
- 3. If the number is between 0 and 1, we know the number must be a positive decimal. The smallest number that can be made is .025, because the larger digits at the end of the number have the lowest value. The largest number that can be made is .520, because the larger digits go at the beginning of the number, and have the largest value.

Answers to Practice Problems – Lesson 9

Set A

 1. a) 15.064489
 b) 9.96
 c) 3.745
 d) 17.811
 e) .34
 f) 211

 g) 79.04
 h) 20.2

1. a) 13, higher b) 7, higher c) 3, higher d) 9, higher

Answers to Practice Problems – Lesson 10

Set A

1.	a) 3	b) 11.25	c) 23.5	d) 5
	e) 53.01	f) 1.84	g) 3.465	h) 83.82
2.	a) 50%	b) 25%	c) 27.27%	d) 120%
	e) 16.6%	f) 87.5%	g) 120%	h) 90%
3.	a) 16. 6 %	b) 3.63%	c) 90.90%	d) 37.5%

Set B

- 1. 0, .1, 13% of 5, $\frac{2}{3}$, 1
- a) Yes. If you save 30% that means you subtract 30% from 100%. In other words,
 100% 30% = 70%
 - b) $$4 \times .3 = 1.20 or $$4 \times .7 = 2.80 The juice will cost \$2.80 \$4 - \$1.20 = \$2.80
 - c) $\$2.80 \times .08 = .224 \approx \$.22$ or $\$2.80 \times 1.08 = 3.024 \approx \3.02 \$2.80 + \$.22 = \$3.02

The juice will cost \$3.02 after tax.



1.	a) <i>x</i> =3	b) <i>n</i> =6	c) <i>z</i> =19
	d) <i>r</i> = 108	e) <i>x</i> = 200	f) w=8
	g) <i>z</i> =-68	h) <i>y</i> =-11	i) <i>t</i> = -57

Set B

1. Let x = the unknown value. $x \div 6 = 1.5$. x = 9

2. The opposite of the square root is squaring a number. $\left(\sqrt{x}\right)^2 = x$



Set A

1.	a) 5 <i>r</i>	b) 5 <i>a</i> +3	c) <i>x</i> +3 <i>y</i>	d) -3 <i>h</i> – 1
2.	a) <i>x</i> = 4	6(4) + 2(4) = 32 24 + 8 = 32	b) <i>y</i> = 2	12(2) + 2 = 26 24 + 2 = 26
		32 = 32		26 = 26
	c) <i>t</i> =5	$2 = \frac{10}{5}$ 2 = 2	d) <i>p</i> =-1	8(-1) = 7(-1) - 1 -8 = -7 - 1 -8 = -8
	e) <i>k</i> =13	-2(13) - 4 = -30		

$$-26 - 4 = -30$$

 $-30 = -30$

Math On the Move

3. 2(12) + 11 = 24 + 11 = 35 4. 2(7) + 4(-6) = 14 - 24 = -10

5. $9^2 - 4(2)(3) = 81 - 24 = 57$

Set B

1.
$$3x - 4 = x + 2$$

 $2x - 4 = 2$
 $2x = 6$
 $x = 3$
2. $\frac{3a + 2 - 2a - 2}{a} = \frac{a}{a} = 1$

Answers to Practice Problems – Lesson 13

Set A

1.	a) 7 <i>b</i>	b) 9-	+ <i>b</i> c	c) <i>b</i> - 3	d) 3 – <i>b</i>
2.	a) <i>a</i> +3	b) 4+25 <i>q</i>	c) 144 <i>x</i> (sq. in.)	d) 2 <i>n</i> -8	e) 6(<i>n</i> + 15)

Set B

1. An algebraic expression has no equal sign, while an equation has two algebraic expressions separated by an equal sign.

2.	Let <i>a</i> = Anita's age now = 4	a + 2 + 2a + 2 + 10a + 2 = 58
	2 <i>a</i> = Juan's age now = 8	13a + 6 = 58
	5(2 <i>a</i>) = 10 <i>a</i> = Father's age now = 40	13 <i>a</i> = 52
		a = 4
3.	5 - 4.35 = 6.65 Savannah got \$.65 back	25x + 10(5 - x) = 65
	Let <i>x</i> = number of quarters = 1	25x + 50 - 10x = 65
	5 – x = number of dimes = 4	15x + 50 = 65
		15 <i>x</i> = 15
		x = 1



1. 12 ft. = 144 in.

2. 633,600 in. = 10 miles

3.	a) 3.8 m = .0038 km	b) 4 kg = 4,000,000 mg	c) 12.2 cL = .00122 hL	
	d) 53.3 mm = .0000533 km	e) 9 g = .9 dag	f) 1.6 daL = 160 dL	
4.	a) Years b) Months	c) Weeks d) Minutes or seconds	e) Hours or Minutes	
5.	a) 15 min. = 900 sec.	b) 1 year = 525,600 min.		
	c) 175 sec. = 2 min. 55 sec.	d) 1,000,000 ≈ 11 days		

6. 15 min. = 900 sec. 7. 3 yr. = 1095 days 8. 7 yr. = 220,752,000 sec.

Set B

- 1. Answers may vary. One method would be using shoe size to approximate. Take steps going heel to toe with your feet, and measure how many shoe lengths it would take to go from one end of the court to the other. Another method could use arm spans (fathoms).
- 2. Answers will vary. Take your age in years, and multiply that by 31,536,000. If you want to be more precise, find out how many years and days you've been alive. Take the years, multiply that by 31,536,000. Then, multiply the days by 86,400. Lastly, add those two numbers together, and that is how many seconds you have been alive. (You could get more precise if you find out how many years, days, hours, and minutes you have been alive.)

- Answers will vary. Take your height in inches, and <u>multiply</u> that by 2.5. That is your height in cm.
 Take your weight in pounds, and <u>divide</u> that by 2.2. That is your weight in kg.
- 4. Answers may vary. In the United States, a car's speed is measured in miles per hour. This is the rate of the distance traveled (in miles) over the time (in hours) it took for the car to travel that distance. In most other countries, a car's speed is measured in km/hr.
- 5. If Jesús ran the race faster than José, his time had to be less than José's, because his speed was faster than José's. Think of it this way: speed is measured as the following rate, speed = $\frac{\text{distance}}{\text{time}}$. We can rearrange this equation to solve for time: time = $\frac{\text{distance}}{\text{speed}}$. Since both runners ran the same distance, we will let d = the distance they ran. We will also let s = the speed that José ran the race. Since Jesús was four times faster, his speed is 4s. José's time can be represented by the following equation.

$$t=\frac{d}{s}$$

Jesús's time can be represented by this equation.

$$t'=\frac{d}{4s}$$

Thus, Jesús's time is $\frac{1}{4}$ of José's time. In other words, Jesús ran the race in $24 \times \frac{1}{4} = 6$ min.

Answers to Practice Problems – Lesson 15

Set A



1.
$$\frac{40 \text{ yd.}}{4.4 \text{ sec}} \left(\frac{3600 \text{ sec.}}{1 \text{ hr.}}\right) \left(\frac{1 \text{ mi.}}{1760 \text{ yd.}}\right) \approx 18.6 \text{ mph}$$

2. red : white : blue = 1 : 2 : 4 = 1x : 2x : 4x. x + 2x + 4x = 175 7x = 175x = 25

There are 25 red marbles, 2(25) = 50 white marbles, and 4(25) = 100 blue marbles.

Answers to Practice Problems – Lesson 16

Set A

1. <i>b</i> =10	2. <i>w</i> =99	3. <i>z</i> = 32	4. $\frac{a+5}{20} = \frac{a}{15}$
			15(<i>a</i> + 5) = 20 <i>a</i>
			15 <i>a</i> + 75 = 20 <i>a</i>
			75 = 5 <i>a</i>
			15 = <i>a</i>

Set B

1.	length weight	$\frac{8.5}{52} = \frac{10}{x}$ A 10 cm length of cable weighs 61.18 g . 8.5x = 520
		<i>x</i> ≈ 61.18
2.	men women	$\frac{6}{5} = \frac{3600}{x}$ There are 3000 women in the class.
		6 <i>x</i> = 18,000
		x = 3000
	14 in.	

3. $\frac{14 \text{ in.}}{48 \text{ hr.}} \approx .3 \text{ in./hr.}$

4.
$$7\frac{1}{2} \operatorname{hr.}\left(\frac{60 \operatorname{min.}}{1 \operatorname{hr.}}\right) = 450 \operatorname{min.} \frac{450}{25} = 18$$
. The doctor can see **18 patients**.
Answers to Practice Problems – Lesson **17**
Set A

- 1. a) Acute angle b) Right angle c) Obtuse angle d) Straight angle
- 2. In the diagram, $l \parallel m$, $k \perp m$, and $k \perp l$. Vertical angles are: $\measuredangle BDC \cong \measuredangle GDE$, $\measuredangle CDG \cong \measuredangle BDE$, $\measuredangle GJI \cong \measuredangle KJL$, $\measuredangle GJK \cong \measuredangle IJL$, $\measuredangle IGJ \cong \measuredangle DGE$, $\measuredangle DGI \cong \measuredangle EGJ$, $\measuredangle DEG \cong \measuredangle AEF$, $\measuredangle DEA \cong \measuredangle GEF$

1. Answers will vary.

Answers to Practice Problems – Lesson 18

Set A

- 1. a) True b) False c) True d) True e) True
- 2. a) Polygon, quadrilateral, parallelogram, rhombus, rectangle, and square
 - b) Polygon, quadrilateral, trapezoid, and isosceles trapezoid
- 3. a) Perimeter = 44 units Area = 121 square units
 - b) Perimeter = 30 units Area = 50 square units
 - c) Perimeter = 32 units Area = 45 square units
 - d) Perimeter = 24 units Area = 24 square units



1.

P = 4s We want area and perimeter to be equal (P = A). $A = s^2$ So, we will substitute for P and A. $\frac{4s}{3} = \frac{s^2}{s}$ 4 = s

2. The **base is 10** and **height is 5**

$$A = bh$$
 If the base is twice the height,
 $b = 2h$ then $b = 2h$. So, we will
substitute $2h$ for b in the area
formula, and 50 for A .
 $50 = (2h)h$
 $10 = (2h)h$

3.
$$\frac{16}{x} = \frac{x}{25}$$

 $\sqrt{400} = \sqrt{x^2}$
 $20 = x$
The area of the smaller rectangle is 320 mm², and the area of the larger rectangle is 500 mm².

Set A

- 1. a) The missing angles are both 45° . It is a right, isosceles triangle.
 - b) The missing angle is 33° . It is an acute, scalene triangle.

2.	a) No	b) Yes, obtuse	c) No
	d) Yes, right	e) Yes, obtuse	f) Yes, right

Math On the Move

- 1. You cannot create a right equilateral triangle $(3 \times 90^\circ = 270^\circ)$. Each angle in an equilateral triangle is $60^\circ (3 \times 60^\circ = 180^\circ)$.
- 2. True. The right angle is 90° . Since the three angles must sum to 180° , and $180^{\circ} 90^{\circ} = 90^{\circ}$, the other two angles have to add up 90° . This is the definition of complementary angles.
- 3. $6^2 + 8^2 = 36 + 64 = 100$ Use Pythagorean Theorem $\sqrt{100} = 10$ Add three zeros. Dominick is **10,000 ft**. from the plane. This is the method without using mental math. Notice the answer is the same. 8000 ft.

$$6000^2 + 8000^2 = 36,000,000 + 64,000,000 = 100,000,000$$

 $\sqrt{100,000,000} = 10,000$

Answers to Practice Problems – Lesson 20

Set A

- 1. $A = \frac{1}{2}(3)(4) = 6$ square units 2. $A = \frac{1}{2}(5)(7) = 17.5$ square units
- 3. $A = \frac{1}{2}(17)(15) = 127.5$ square feet

4)
$$10 = \frac{1}{2}(b)(4)$$

 $10 = 2b$
 $5in. = b$
5) $48 = \frac{1}{2}(12)(h)$
 $48 = 6h$
 $8 \text{ ft. } = h$

6) 25 hm 7) 7 ft. 8) 27 mi.

9) <i>z</i> = 10 mi.	10) <i>x</i> = 14 cm
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12)	15 _ <i>s</i>	13)	5 _ 10
	$\frac{1}{20} - \frac{1}{3}$	15)	$\overline{3}$ \overline{s}
	45 = 20 <i>s</i>		5 <i>s</i> = 30
	2.25 = <i>s</i>		<i>s</i> = 6

1. Answers may vary. The two quadrilaterals have right angles at each vertex, but the corresponding sides are not proportional.



- 2. Both proportions work. When you cross multiply you end up with the same number attached to the *z*, and the same number on the other side of the equal sign. The solution is z = 29.75
- 3. Add up all the sides and set that equal to the perimeter. x + x + x + 1 = 16





Set A

- 1. a) \overline{AB} b) \overline{OA} , \overline{OB} , \overline{OC} , and \overline{OD}
- 2. a) 12 mm b) 6 mm

- 3. a) Area = 9π km² ≈ 28.3 km²Circumference = 6π km ≈ 18.8 kmb) Area = 12.25π sq. in. ≈ 38.5 sq. in.Circumference = 7π in. ≈ 22.0 in.
- 4. Danny did not square 10, he doubled it. He also forgot to include the units. The actual area of the circle is $100\pi \text{ m}^2 \approx 314 \text{ m}^2$.

- 1. The area of the whole pizza is $36\pi \approx 113.04$ sq. in. So, the area of on slice is $113.04 \div 8 = 14.13$ sq. in.
- 2. To find the area of the shaded ring, find the area of the larger circle and subtract the area of the smaller circle. $9^2\pi 6^2\pi = 81\pi 36\pi \approx 141.3$ square units

Answers to Practice Problems – Lesson 22

Set A

- 1. Prisms and cylinders have two bases.
- 2. The length of all the edges of a cube are the same. (the length, width, and height are all the same).

3. a)
$$8 \times 11 \times 5.5 = 484 \text{ ft.}^3$$

b) $\left(\frac{1}{2} \times 8 \times 5\right) \times 2 = 40 \text{ m}^3$
c) $\frac{1}{3} (10^2 \pi) 30 \approx 3140 \text{ mm}^3$
d) $\frac{1}{3} \left(\frac{1}{2} \times 12 \times 18\right) 32 = 1152 \text{ cm}^3$

Set B



2. A sphere has no base.



3. The length of the edge is 4. 4 \times 4 \times 4 $\,=\,$ 64

1. A vertical line has no "run". In other words the "run" is zero. We cannot divide a number by zero, so a vertical line is undefined.



Set A

- 1. a) 800,000 b) 900,000
 - c) The biggest decrease occurred between the 1950s and 1960s.
- 2. a) The minimum wage in 1978 was approximately \$2.60.
 - b) The minimum wage was above \$5 in 1998 and the years following.
 - c) The minimum wage was below \$1 in years preceding 1958.

Set B

1. We use graphs to represent data, because it is an easy way to condense, visualize, and compare data.





End of Answers to Practice Problems