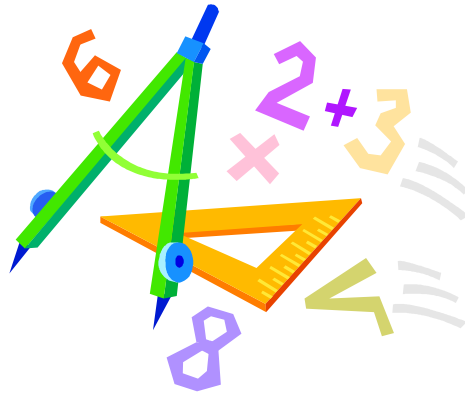


Math Summer Work 2023

**Rising 6th Grade (entering 7th grade in Fall 2023) –
Accelerated math**



No Calculators

This workbook will be collected in September.

Lesson One- Decimals

Part 1: In exercises 1 – 5, compare the numbers. Write $<$, $>$, or $=$.

1) $0.039 \underline{\hspace{1cm}} 0.390$ 2) $4.96 \underline{\hspace{1cm}} 5.02$ 3) $0.01 \underline{\hspace{1cm}} 0.008$

4) $1.6849 \underline{\hspace{1cm}} 1.685$ 5) $4.707 \underline{\hspace{1cm}} 4.770$

Part 2: In exercises 6 – 10, find the sum or difference.

6) $8.74 + 9.327$ 7) $6.5 - 0.0032$ 8) $10 - 1.02$

9) $1.25 + 0.025$ 10) $0.47 + 0.463 + 75.6$

Part 3: In exercises 11 – 15, find the product or quotient.

11) 64.2×0.7 12) $0.73 \cdot 42$ 13) $12.92 \div 3.4$

14) $3.618 \div 0.67$ 15) 0.69×0.54

Part 4: In exercises 16 – 20, write the decimal as a fraction in simplest form.

16) $.626$ 17) $.2$ 18) $.65$ 19) $.06875$ 20) 0.375

Part 5) In exercises 21 – 25, write the fraction as a decimal.

21) $\frac{1}{8}$ 22) $\frac{2}{3}$ 23) $\frac{1}{20}$ 24) $\frac{3}{16}$ 25) $\frac{3}{4}$

Lesson Two-----Order of Operations and Exponents

Part 1: In exercises 1 – 5, evaluate the expressions. Remember to use order of operations.

1) $3 \times 5 + 12 \div 3$

2) $3(6 + 8) \div 7$

3) $6 + (10 - 7) \cdot 2$

4) $3[16 - (3 + 7) \div 5]$

5) $14 - 8 + 4 \cdot 2^3$

Part 2: In exercises 6 & 7, write the product as a power

6) $6 \times 6 \times 6$

7) $m \cdot m \cdot m \cdot m \cdot m$

Part 3: In exercise 8 – 12, evaluate the expression.

8) 3^4

9) $\sqrt{81}$

10) 5^3

11) four cubed

12) two to the fifth power

Part 4: In exercises 13 – 18, evaluate the expression when $a = 2$ and $b = 7$

13) ab

14) $5a + 2b$

15) $(24a - 6) \div b$

16) $(b - a)^3$

17) $(a + b) \div (b - 2a)$

18) $6(b - a) \div (3a)$

Lesson Three- Solving Equations

Part 1: In exercises 1 – 6, solve the equation. Show all of your work, including the check.

1) $x - 8 = -8$

2) $-1 = t - 17$

3) $-20 + p = 14$

4) $m - 25 = -33$

5) $-11 = y + 12$

6) $36 + k = 47$

Part 2: In exercises 7 -12, solve the equation. Make sure to show all of your work, including the check.

7) $4x = 16$

8) $56 = 7n$

9) $\frac{n}{4} = 25$

10) $\frac{b}{20} = 2$

11) $16 = \frac{x}{4}$

12) $4.8b = 36$

Lesson Four—Distributive Property

Part 1: In exercises 1 – 5, use the distributive property to find the equivalent expression.

1) $4(x+9)$

2) $16(z+3)$

3) $a(b+4)$

4) $r(s+t)$

5) $12(s+t+w)$

Part 2: In exercises 6 – 14, simplify the expression by combining like terms.

6) $r + 2s + 3r$

7) $11w + 9z + 3z + 5w$

8) $7a - 2a + 8b - 2b$

9) $3x + 2x + y + 2y - 3$

10) $-3x + 2x - 9y - 2x$

11) $r + 2s - (-3r) - s$

12) $xy + x^2 + xy$

13) $6xy + x^2 + x^2$

14) $p + 3 + 9q + 9 + 14p$

Part 3: In exercises 15 – 20, use the distributive property and combining like terms to simplify the expression.

15) $2(2x+1)+3x-5x$

16) $8d-2(3d-5d)$

17) $3(a+4)+b-5-a+7(b-3)$

18) $3.2(2z-3x)+4(1.1y+x)-2z$

19) $7(y-1.3)+2.4-5.3y$

20) $4(3c-4)=2-4c$

Lesson Five- Integers

Part 1: In exercises 1 – 10, use <, >, or = to compare the integers.

1) $-8 \square -18$

2) $-68 \square -687$

3) $2 \square -2$

4) $-2 \square -7$

5) $-13 \square -131$

6) $-54 \square -45$

7) $-7 \square -6$

8) $-8 \square -8$

9) $-50 \square 50$

10) $-73 \square 3$

Part 2: In exercises 1 -10, add the integers.

11) $-9 + 15$

12) $(-17) + (-5)$

13) $24 + 7$

14) $-20 + 15$

15) $-40 + 21$

16) $-12 + (-19)$

17) $-8 + 2$

18) $17 + (-8)$

19) $7 + (-9)$

20) $-4 + (-9)$

Part 3: In exercises 21- 30, subtract the integers.

21) $5 - (-16)$

22) $-7 - 8$

23) $8 - (-30)$

24) $7 - 14$

25) $45 - (-20)$

26) $2 - 10$

27) $11 - 13$

28) $64 - (-8)$

29) $-13 - 15$

30) $-4 - (-6)$

Part 4: In exercises 1 – 10, find the product.

1) $9 \times (-3)$

2) $100(12)$

3) $13 \cdot (-9)$

4) $-7 \cdot 20$

5) $(8)(-11)$

6) $12(-5)$

7) -9×-4

8) $6(30)$

9) $-50 \cdot 3$

10) $-7(-14)$

Part 5: In exercises 11 -20, find the quotient.

11) $60 \div (-15)$

12) $-42 \div (-6)$

13) $-68 \div (-4)$

14) $84 \div (-12)$

15) $58 \div (-2)$

16) $-44 \div (-22)$

17) $\frac{-56}{4}$

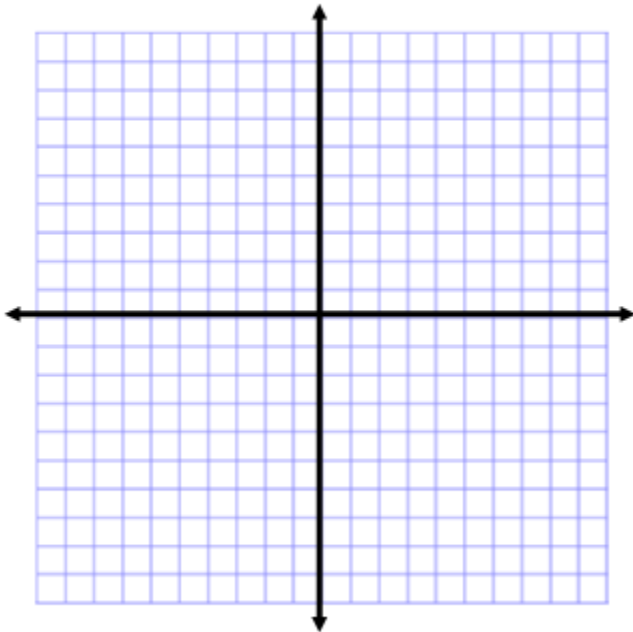
18) $-120 \div (-3)$

19) $\frac{-150}{25}$

20) $45 \div (-9)$

Lesson Six—Coordinate Planes

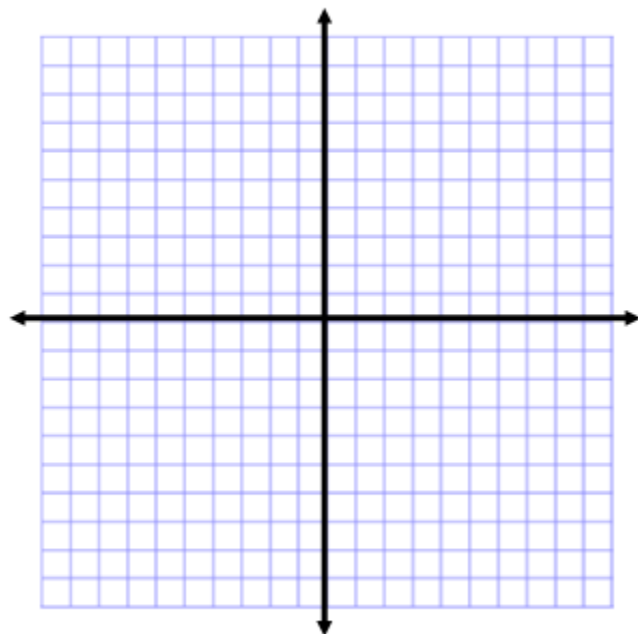
Part 1: In this exercise, label the x and y and the quadrants of the coordinate plane.



Part 2: In this exercise complete the table of values by solving the equation to find the value of y . Write the coordinate pairs and then graph them on the coordinate plane.

$$2 + x = y$$

x	-3	-2	-1	0	1	2
y						
(x,y)						



Lesson Seven----Single step and Multi-step equations

Part 1: In exercises 1 – 9, solve the equation. Check your answer and show all of your work.

1) $3y - 4 = 2$

2) $15 = -4p + 7$

3) $11 = \frac{h}{6} + 8$

4) $6 + 2c = 15$

5) $29 = -5a + 4$

6) $-7 + \frac{z}{4} = 5.2$

7) $\frac{x}{4} - 2 = -7$

8) $\frac{2x}{3} = -8$

9) $-\frac{5m}{2} = 35$

Part 2: In exercises 10 - 15, solve the multi-step equations. Be sure to check your answer and show all of your work.

10) $2a + 3a = 15$

11) $s + 5s - 3s = 21$

12) $6m - 2m - 6 = -60$

13) $5 - 3(x + 1) = 5$

14) $4 - (x + 1) = 8$

15) $3p - (6p + 24) = 0$

Lesson Eight- Prime factorization, LCM and GCF

Part 1: In exercises 1 & 2, use a tree diagram to write the prime factorization of the composite number or monomial.

1) -585

2) $54w^3z^4$

Part 2: In exercises 3 – 8, find the GCF of the composite numbers or monomials.

3) 56 and 84

4) 122 and 45

5) 96 and 120

6) $6xy$ and $4xy^2$

7) $15y$ and $9x^2y^2$

8) $5xy^3$ and $10x^2y^2$

Part 3: In exercises 9 – 14, find the LCM of the composite numbers or monomials.

9) 14 and 21

10) 8 and 10

11) 45 and 75

12) $24t$ and $60st$

13) $9y^4$ and $12y$

14) $7s^3t$ and $49st^2$

Part 4: In exercises 15 – 20, simplify the fraction.

15) $\frac{36}{81}$

16) $\frac{48}{140}$

17) $\frac{-18x^2y}{24x}$

18) $\frac{35xy^2}{7x^2y^4}$

Lesson Nine-Evaluate the exponents and simplify**Part 1: In exercises 1 – 15, evaluate the exponent.**

1) -5^4

2) $(-5)^4$

3) (-6^2)

4) -6^2

5) 3^1

6) z^0

7) y^1

8) x^{-3}

9) 3^{-3}

10) $(-3)^{-3}$

11) -4^2

12) $3x^{-7}$

13) $2s^{-5}$

14) $-6m^{-1}$

15) $(-2)^{-5}$

Part 2: In exercises 16 – 25, simplify the product.

16) $x^3 \cdot x^5$

17) $z^7 \cdot z^5$

18) $3^2 \cdot 3^1$

19) $2^2 \cdot 2^3$

20) $5^{-5} \cdot 5^2$

21) $4^3 \cdot 4^{-3}$

22) $z^{-7} \cdot z^4$

23) $n^5 \cdot n^{-15}$

24) $8^{-2} \cdot 8^{-1}$

25) $3^{-10} \cdot 3^7$

Part 3: In exercises 26 – 35, simplify the quotients.

26) $\frac{5^8}{5^5}$

27) $\frac{z^{10}}{z^5}$

28) $\frac{d8}{d}$

29) $\frac{a^4}{a}$

30) $\frac{2^{12}}{2^6}$

31) $\frac{(-7)^7}{(-7)^4}$

32) $\frac{x^2}{x^7}$

33) $\frac{s^1}{s^3}$

34) $\frac{4^2}{4^4}$

35) $\frac{5^5}{5^7}$

Lesson Ten---Fractions

Part 1: In exercises 1 – 10, find the sum or difference. Simplify if necessary.

1) $\frac{2}{3} + \frac{1}{5}$

2) $\frac{4}{5} - \frac{1}{7}$

3) $\frac{2}{3} - \frac{3}{10}$

4) $\frac{1}{4} + \frac{3}{8}$

5) $\frac{2}{3} + \frac{5}{6}$

6) $-\frac{7y}{12} + \frac{4y}{15}$

7) $\frac{2x}{7} - \frac{x}{2}$

8) $\frac{9s}{4} - \frac{7s}{5}$

9) $\frac{4}{x} + \frac{1}{9}$

10) $\frac{16}{25n} - \frac{9}{10n}$

Part 2: In exercises 11 – 20, find the sum or product. Simplify if necessary.

11) $5\frac{2}{9} + 2\frac{8}{9}$

12) $2\frac{5}{12} + 6\frac{1}{6}$

13) $3\frac{4}{15} - 1\frac{7}{15}$

14) $7\frac{2}{3} - 2\frac{11}{12}$

15) $4\frac{5}{6} + 2\frac{1}{6}$

16) $5\frac{2}{3} + 2\frac{1}{8}$

17) $3 - 1\frac{5}{8}$

18) $6\frac{1}{4} - 1\frac{7}{16}$

19) $2\frac{5}{12} + 1\frac{3}{12}$

20) $6 - 3\frac{3}{4}$

Part 3: In exercises 1 – 10, find the product or quotient. Simplify if necessary.

1) $\frac{4}{7} \cdot \frac{3}{4}$

2) $\frac{3}{12} \cdot \frac{4}{6}$

3) $\frac{3}{6} \div \frac{4}{5}$

4) $\frac{3}{7} \div \frac{4}{5}$

5) $n \div 1\frac{1}{4}$

6) $\frac{5x}{6} \cdot 12$

7) $\frac{-13t}{20} \cdot \frac{-1}{2}$

8) $\frac{3b}{2} \div \frac{9b}{5}$

9) $\frac{-2}{x} \div \frac{3}{x}$

10) $(\frac{-5}{6})(\frac{-6a}{15})$

Part 4: In exercises 11 – 20, find the product or quotient. Simplify if necessary.

11) $1\frac{2}{5} \cdot 3\frac{1}{3}$

12) $4\frac{1}{2} \cdot 2\frac{3}{4}$

13) $\frac{1}{9} \cdot 5\frac{2}{7}$

14) $2\frac{2}{3} \div 1\frac{6}{7}$

15) $2\frac{1}{5} \cdot 10$

16) $4\frac{5}{7} \times 2\frac{2}{3}$

17) $6\frac{3}{4} \div 9$

18) $7\frac{1}{8} \div 4\frac{3}{4}$

19) $1\frac{1}{5} \div 2\frac{1}{4}$

20) $5\frac{1}{4} \div \frac{7}{16}$

Lesson Eleven- Ratios and Proportions

Part 1: In exercises 1 -5, determine if the quotient is a ratio. If possible simplify the ratio.

1) $\frac{4in.}{12in.}$ _____

2) $\frac{3ft.}{12sec.}$ _____

3) $\frac{6balloons}{30balloons}$ _____

4) $\frac{6busses}{12students}$ _____

5) $\frac{36mi.}{24mi.}$ _____

Part 2: In exercises 6 – 10, rewrite the quotient as a ratio and simplify.

6) $\frac{12ft.}{5yds.}$

7) $\frac{8quarts}{3gallons}$

8) $\frac{4in.}{3ft.}$

9) $\frac{1day}{16hrs.}$

10) $\frac{2min.}{15sec.}$

Part 3: In exercises 11 -15, rewrite the rate as a unit rate.

11) $\frac{140mi.}{5gal.}$

12) $\frac{576beats}{8min.}$

13) $\frac{28in.}{8hrs}$

14) 20 ounce box of cereal for \$4.19

15) \$2.73 for 100 sheets of paper

Part 4: In exercises 16 – 20, use what you know about proportions and state whether the statement is true or false.

16) $\frac{4}{5} = \frac{15}{20}$ _____ 17) $\frac{15}{12} = \frac{5}{3}$ _____ 18) $\frac{8}{18} = \frac{16}{36}$ _____ 19) $\frac{15}{75} = \frac{5}{15}$ _____

20) $\frac{3}{8} = \frac{12}{32}$ _____

Part 5: In exercises 1 – 5, solve the proportion.

1) $\frac{m}{6} = \frac{9}{54}$ 2) $\frac{15}{75} = \frac{b}{5}$ 3) $\frac{d}{5} = \frac{40}{100}$ 4) $\frac{36}{9} = \frac{7}{3}$ 5) $\frac{x}{8} = \frac{18}{2}$

Part 6: In exercises 6 – 10, write the description as a proportion and then solve for the variable.

6) n is to 9 as 10 is to 8 7) 35 is to 25 as z is to 5

8) p is to 21 as 11 is to 33 9) 28 is to w as 36 is to 9

10) 4 is to x as 6 is to 24

Part 7: Use what you know about proportions to solve the word problems.

11) You have drawn a design for a billboard. The design is 4ft. high. The letters on the design are 6 in. high. The actual billboard is 20 ft. high. How tall should you make the letters on the billboard?

12) You are at the top of a roller coaster hill that casts a 54 ft. shadow. Your 5-ft tall friend watching below casts a 1.5-ft shadow. How tall is the roller coaster hill?

Lesson Twelve—More Equations

In exercises 1- 12, solve the equation. Make sure to check your work and show all steps.

1) $3a+2=7a+10$

2) $5x+7=8(x-1)$

3) $13v=7(9-v)$

4) $2(z+5)=3z+14$

5) $9y-8=6y+7$

6) $\frac{7a-2}{3}=4$

7) $2.8y+8.6=9.12-1.2y$

8) $7.25p-3+p=14.325$

9) $7-2.65z=-4.4z$

10) $x-\frac{2}{3}x=\frac{3}{4}$

11) $\frac{9}{10}n+\frac{1}{5}=\frac{7}{10}n-\frac{3}{n}$

12) $\frac{6}{4}r-\frac{21}{8}=\frac{3}{4}r$

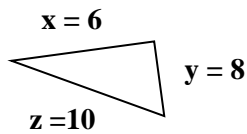
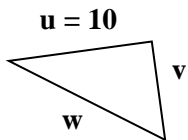
Lesson 13- Geometry

I. Triangles

For questions 1-3 find the length of the missing leg of the right triangle where c is the hypotenuse.

1. $a = 6$ $b = \underline{\hspace{2cm}}$ $c = 10$
2. $a = 5$ $b = 12$ $c = \underline{\hspace{2cm}}$
3. $a = 9$ $b = 15$ $c = \underline{\hspace{2cm}}$

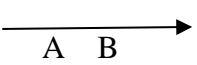
Use the similar triangles-they have the same angles. Each triangle is a right triangle



4. Find the ratio of u to x $\underline{\hspace{2cm}}$
5. solve for v $\underline{\hspace{2cm}}$
6. solve for w $\underline{\hspace{2cm}}$
7. What is the perimeter of triangle UVW $\underline{\hspace{2cm}}$
8. What is the area of Triangle UVW $\underline{\hspace{2cm}}$
9. A chimney sweep must place a 52-foot ladder against the wall of a home so that it reaches a point exactly 48 feet high. How far from the home should he place the ladder? $\underline{\hspace{2cm}}$

II. Geometry Basics

Draw each figure and label.

Example: Draw a ray  A B

1. Line
2. Point
3. Line segment
4. Plane

III. Use a protractor to draw angles for exercises 1-5

1. Draw a 45° angle
2. Draw a 135° angle
3. Draw a 45° angle
4. Draw a 90° angle
5. Draw a 5° angle

Lesson 14- Sets

I. Complete the table by writing either the roster form or set description.

Roster	$\{0, 5, 10, 15, 20, \dots\}$		Set
	$\{24, 26, 28, 30, \dots\}$		
		The set of all multiples of 17 from 17 to 51 inclusive.	
	{Mrs. Windsor , Mr. Wilmer, Mr. Woods}		
Description		The set of '09 St. Paul's School teachers that are under 10 years old.	

II. Use set-builder notation to write each set.

Symbols :

D = { x | Conditions(s) }
 Set D is the set of all elements x such that the condition(s) x must meet in order to be a member of the set

Example: $E = \{11, 12, 13, 14, 15 \dots\}$ $E = \{x | x \in N \text{ and } x \text{ is } > 10\}$ Which reads: "The set of all elements x such that x is a natural number and x is greater than 10."

6) A set of natural numbers between 57 and 100} _____

7) A set if natural numbers greater than 1000 _____

8) A set of natural numbers less than 5 _____

. III. **Venn Diagrams:** Using the Venn diagram find the following answers

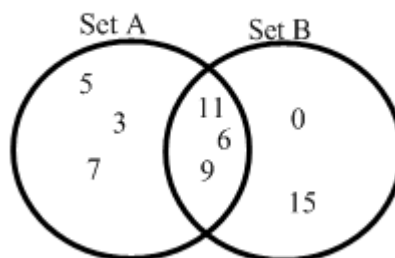
1. Use the roster form to write set A and B _____

2. $A \cap B =$ _____

3. $A \cup B =$ _____

4. Does set A overlap B? _____

5. Are the sets disjoint? _____



Answers

Resources

Barron's Mathematics Study Dictionary ISBN #0-7641-0303-2

<http://www.mathopenref.com/>

<http://aaamath.com/>

<http://www.coolmath.com/>

[www.mathforum.com.](http://www.mathforum.com)

[www.fleetkids.com.](http://www.fleetkids.com)

[www.funbrain.com/numbers.html.](http://www.funbrain.com/numbers.html)

Answer Sheet - Please Remove

Lesson One

Part 1

- 1) $0.039 \leq -0.390$ 2) $4.96 \leq -5.02$ 3) $0.01 \geq 0.008$ 4) $1.6849 \leq 1.685$ 5) $4.707 \leq 4.770$

Part 2

- 6) 18.067 7) 6.4968 8) 8.98 9) 1.275 10) 154.786

Part 3

- 11) 44.94 12) 33.66 13) 3.8 14) 5.4 15) 0.3726

Part 4

- 16) $\frac{5}{8}$ 17) $\frac{1}{5}$ 18) $\frac{13}{20}$ 19) $\frac{11}{16}$ 20) $\frac{3}{8}$

Part 5

- 21) 0.125 22) $\overline{.6}$ 23) 0.05 24) 0.1875 25) 0.75

Lesson Two- Order of Operations and Exponents

Part 1

- 1) 19 2) 6 3) 12 4) 42 5) 38

Part 2

- 6) 6^3 7) m^5

Part 3

- 8) 81 9) 9 10) 125 11) 64 12) 32

Part 4

- 13) 14 14) 24 15) 6 16) 125 17) 2 18) 5

Lesson Three- Solving Equations

Part 1

- 1) 0 2) 16 3) 34 4) -8 5) -23 6) 11

Part 2

- 7) 4 8) 8 9) 100 10) 40 11) 64 12) 7.5

Lesson Four- Distributive Property

Part 1

- 1) $4x + 36$ 2) $16z + 48$ 3) $ab + 4a$ 4) $rs + rt$ 5) $12s + 12t + 12w$

Part 2

- 6) $4r + 2s$ 7) $16w + 12z$ 8) $5a + 5b$
9) $5x + 3y - 3$ 10) $-3x - 9y$ 11) $4r + s$
12) $2xy + x^2$ 13) $6xy + 2x^2$ 14) $15p + 9q + 12$

Part 3

- 15) $2x + 2$ 16) $12d$ 17) $2a + 8b - 14$
18) $-5.6x + 4.4y + 4.4z$ 19) $1.7y - 6.7$ 20) $8c - 14$

Lesson Five- Integers

Part 1

- 1) $>$ 2) $>$ 3) $>$ 4) $>$ 5) $>$ 6) $>$ 7) $<$ 8) $=$ 9) $<$ 10) $<$

Part 2

- 11) 6 12) -22 13) 31 14) -5 15) -19

16) -31 **17)** -6 **18)** 9 **19)** -2 **20)** -1
Part 3

21) 21 **22)** -15 **23)** 38 **24)** -7 **25)** 65

26) -8 **27)** -2 **28)** 72 **29)** -28 **30)** 2

Part 4

1) -27 **2)** 120 **3)** -117 **4)** -140 **5)** -88

6) -60 **7)** 36 **8)** 180 **9)** -180 **10)** 98

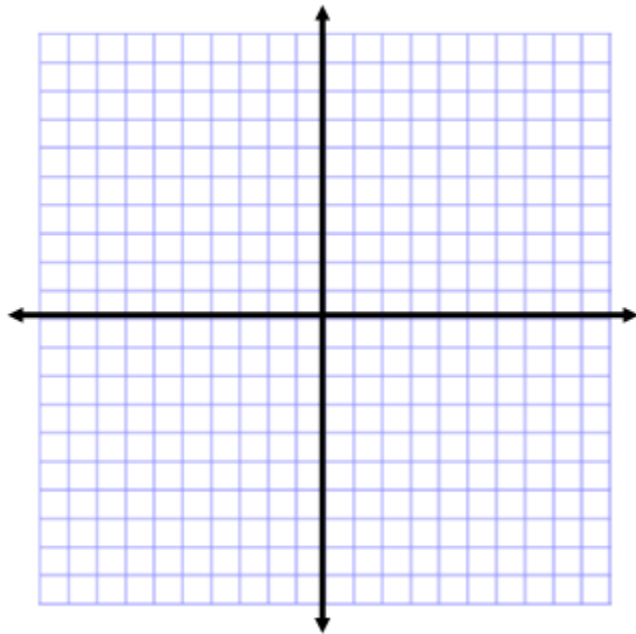
Part 5

11) -4 **12)** 7 **13)** 17 **14)** -7 **15)** -29

16) 2 **17)** -14 **18)** 40 **19)** -6 **20)** -5

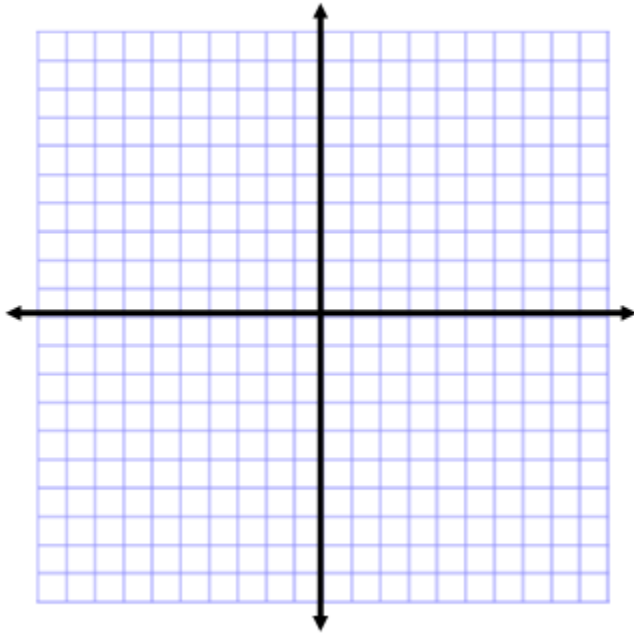
Lesson Six- Coordinate Planes

Part 1



Part 2

x	-3	-2	-1	0	1	2
y	-1	0	1	2	3	4
(x,y)	$(-3,-1)$	$(-2,0)$	$(-1,1)$	$(0,2)$	$(1,3)$	$(2,4)$



Lesson Seven- Single step and Multi-step Equations

Part 1

1) $y = 2$ 2) $p = 2$ 3) $h = 18$ 4) $c = 4.5$ 5) $a = -5$

6) $z = 48.8$ 7) $x = -20$ 8) $x = -12$ 9) $m = -14$

Part 2

10) $a = 3$ 11) $s = 7$ 12) $m = -\frac{37}{2}$ 13) $x = -1$

14) $x = -1$ 15) $p = -8$

Lesson Eight- Prime Factorization, LCM and GCF

Part 1

1) -585
 / \
 3 195
 / / \
 3 3 65
 / / / \
 3 3 5 13
-1 · 3 · 3 · 5 · 13

2) $54w^3z^4$
 / \
 2 27
 / / \
 2 3 9
 / / / \
 2 3 3 3
 $2 \cdot 3 \cdot 3 \cdot 3 \cdot w \cdot w \cdot w \cdot z \cdot z \cdot z \cdot z$

Part 2

3) 28 4) 1 or relatively prime 5) 24 6) $2xy$ 7) $3y$ 8) $5xy^2$

Part 3

9) 42 10) 40 11) 225 12) $120st$ 13) $36y^4$

14) $49s^3t^2$

Part 4

15) $\frac{4}{9}$ 16) $\frac{12}{35}$ 17) $\frac{-3xy}{4}$ 18) $\frac{5}{xy^2}$

Lesson Nine- Evaluate the exponents and simplify

Part 1

1) -625

2) 625

3) 36

4) -36

5) 3

6) 1

7) y

8) $\frac{1}{x^3}$

9) $\frac{1}{27}$

10) $\frac{1}{-27}$

11) -16

12) $\frac{3}{x^7}$

13) $\frac{2}{s^5}$

14) $\frac{-6}{m}$

15) $\frac{1}{-32}$

Part 2

16) x^8

17) z^{12}

18) 81

19) 32

20) $\frac{1}{125}$

21) 1

22) $\frac{1}{z^3}$

23) $\frac{1}{n^{10}}$

24) $\frac{1}{512}$

25) $\frac{1}{27}$

Part 3

26) 125

27) z^5

28) d^7

29) a^3

30) 64

31) -343

32) $\frac{1}{x^5}$

33) $\frac{1}{s^2}$

34) $\frac{1}{16}$

35) $\frac{1}{25}$

Lesson Ten- Fractions

Part 1

1) $\frac{13}{15}$

2) $\frac{23}{35}$

3) $\frac{1}{10}$

4) $\frac{5}{8}$

5) $\frac{9}{6}$ or $1\frac{1}{2}$

6) $\frac{-19y}{60}$

7) $\frac{-3x}{14}$

8) $\frac{17s}{20}$

9) $\frac{36+x}{9x}$

10) $\frac{-13}{50n}$

Part 2

11) $8\frac{1}{9}$

12) $8\frac{7}{12}$

13) $1\frac{4}{5}$

14) $4\frac{3}{4}$

15) 7

- 16) $7\frac{19}{24}$ 17) $1\frac{3}{8}$ 18) $4\frac{13}{16}$ 19) $3\frac{2}{3}$ 20) $2\frac{1}{4}$

Part 3

- 1) $\frac{3}{7}$ 2) $\frac{1}{6}$ 3) $\frac{5}{8}$ 4) $\frac{15}{28}$ 5) $\frac{4n}{5}$
6) $10x$ 7) $\frac{13t}{40}$ 8) $\frac{5}{6}$ 9) $\frac{-2}{3}$ 10) $\frac{a}{3}$

Part 4

- 11) $\frac{14}{3}$ 12) $\frac{99}{8}$ 13) $\frac{37}{63}$ 14) $\frac{56}{39}$ 15) 22
16) $\frac{88}{7}$ 17) $\frac{3}{4}$ 18) $\frac{3}{2}$ 19) $\frac{8}{15}$ 20) 12

Lesson Eleven- Ratios and Proportions

Part 1

- 1) yes $\frac{3}{4}$ 2) no 3) yes $\frac{1}{5}$ 4) no 5) yes $\frac{3}{2}$

Part 2

- 6) $\frac{4}{5}$ 7) $\frac{2}{3}$ 8) $\frac{1}{9}$ 9) $\frac{3}{2}$ 10) $\frac{8}{1}$

Part 3

- 11) $\frac{28mi.}{1gal.}$ 12) $\frac{72beats}{1min.}$ 13) $\frac{3.5in.}{1hr.}$
14) \$.21 per ounce 15) 3 cents per sheet

Part 4

- 16) false 17) false 18) true 19) false 20) true

Part 5

1) $m = 1$ 2) $b = 1$ 3) $d = 2$ 4) $z = 12$ 5) $x = 72$

Part 6

6) $\frac{n}{9} = \frac{10}{18}; n = 5$ 7) $\frac{35}{25} = \frac{z}{5}; z = 7$ 8) $\frac{p}{21} = \frac{11}{33}; p = 7$

9) $\frac{28}{w} = \frac{36}{9}; w = 7$ 10) $\frac{4}{x} = \frac{6}{24}; x = 16$

Part 7

11) $\frac{4ft}{6in.} = \frac{20ft}{x}; x = 30in.$

12) $\frac{11}{50} \frac{x}{54ft} = \frac{5}{1.5}; x = 180ft.$

Lesson Twelve- More Equations

1) $a = -2$ 2) $x = 5$ 3) $u = 3.15$ 4) $z = -4$ 5) $y = 5$ 6) $a = 2$

7) $y = 0.13$ 8) $p = 2.1$ 9) $z = -4$ 10) $x = \frac{9}{4}$ 11) $n = 4$ 12) $r = \frac{7}{2}$

Lesson 13- Triangles

I. Triangles

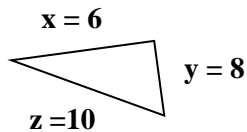
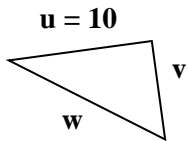
For questions 1-3 find the length of the missing leg of the right triangle where c is the hypotenuse.

1. $a = 6$ $b = 8$ $c = 10$

2. $a = 5$ $b = 12$ $c = 13$

3. $a = 9$ $b = 15$ $c = 17.49$

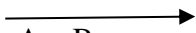
Use the similar triangles-they have the same angles.

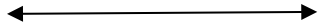


4. Find the ratio of u to x $10:6$ or $10/6$
5. solve for v 13.33
6. solve for w 16.66
7. What is the perimeter of triangle UVW approximately 40
8. What is the area of Triangle UVW approximately 66.65
9. A chimney sweep must place a 52-foot ladder against the wall of a home so that it reaches a point exactly 48 feet high. How far from the home should he place the ladder? 20 feet

II. Geometry BasicsResources: <http://www.mathopenref.com/linesegment.html>

Draw each figure and label.

Example: Draw a ray  A B

5. Line  C D

6. Point **.A**

7. Line segment  C D

8. Plane A



III. Use a protractor to draw angles for exercises 1-5

6. Draw a 45° angle

7. Draw a 135° angle

8. Draw a 45° angle

9. Draw a 90° angle

10. Draw a 5° angle

Lesson 14- Sets

Complete the table by writing either the roster form or set description.

Roster	$\{0, 5, 10, 15, 20, \dots\}$	The set of all multiples of 5 from 0	Set
	$\{24, 26, 28, 30, \dots\}$	The set of all even numbers from 23	
	$\{17, 34, 51\}$	The set of all multiples of 17 from 17 to 51 inclusive.	
	$\{\text{Mrs. Windsor, Mr. Wilmer, Mr. Woods}\}$	The set of teachers whose last name begins with W	
	$\{\}$ or \emptyset or null set	The set of '09 St. Paul's School teachers that are under 10 years old.	

Description

II. Use set-builder notation to write each set.

Symbols :

\mathbf{D} = $\{ x \mid \text{Conditions(s)} \}$
 Set D is the set of all elements x such that the condition(s) x must meet in order to be a member of the set

Example: $E = \{11, 12, 13, 14, 15 \dots\}$ $E = \{x | x \in N \text{ and } x \text{ is } > 10\}$ Which reads: "The set of all elements x such that x is a natural number and x is greater than 10."

6) A set of natural numbers between 57 and 100} $E = \{x | x \in N \text{ and } 57 < x < 100\}$

7) A set if natural numbers greater than 1000 $E = \{x | x \in N \text{ and } x > 1000\}$

8) A set of natural numbers less than 5 $E = \{x | x \in N \text{ and } x < 5\}$

. III. **Venn Diagrams:** Using the Venn diagram find the following answers

6. Use the roster form to write set A and B $A = \{3, 5, 6, 7, 9, 11\}$

7. $A \cap B = \{6, 9, 11\}$

8. $A \cup B = \{0, 3, 5, 6, 7, 9, 11, 15\}$

9. Does set A overlap B? yes

10. Are the sets disjoint? No

