Welcome to 8th Grade!

Hello Rising 8th Graders,

We had a **GREAT** year this year. A lot of you showed such **amazing growth** in math and I am **SO** proud of you all! I want to make sure that when we come back to school in the Fall that we can pick up right where we left off and get straight to work. I know for me too, it can be hard coming back to school and remembering everything from class last year. So it's MY GOAL to help you remember over the summer by assigning a minimal amount of work that just keeps you on your toes, but doesn't overwhelm you.

I have printed 8 weeks of review for you based on your grade level LAST year. This is to be completed in a paper packet. I will collect these packets the first day back to school, they will count as your first **quiz grade** of the new school year.

Your packet is made up of: 1 page of review for each unit (this is front and back) some weeks will be faster than others. Each skill has detailed notes for you to look at to remember *how* to complete the work. At the end of SOME weeks, you will have a quiz that reviews that material. The quiz is included because it 1) helps strengthen your skills with quiz/ test questions and 2) to give a further review of the big concepts. You will be invited to a Schoology page for the summer that gives you access to all my videos for each unit. Feel free to use this as you need/ want.

Each week you need to complete:

- ONE unit page (this is front and back)
- A quiz (if it is found directly after the practice

Expectations	**Description**	**Points**
Completed the entire page assigned each week (this includes the quizzes)	All questions were answered and the answer was BOXED in or in case of multiple choice, CIRCLED so that it was legible	/10
Showed work for each problem solved	Clearly showed the work in the appropriate space. Worked out long hand multiplication & division clearly; showed all steps in order of operations or all steps in solving an equation	/10
Neatness	My work is legible and easy for my teacher/parent/friend to follow and clearly BOXES in my answer	/5
TOTAL		/25

I have included an example of my expectations for showing work and neatness

Full Points (see example)	Half Points	No Points
Showed all work	Showed most of work	Did not show work
Answered all questions	Half completed	Less than half complete
Clearly legible & easy to read	Mostly readable, with a few areas being difficult to decipher	Very difficult to decipher, cannot see work clearly; numbers are easily misread

Want more practice/ extra credit?

I am offering an extra credit quiz grade to anyone who choose to do extra work by completing a diagnostic test in IXL. This test will help evaluate WHERE you are in Math and then will tailor specific skills for you to work on.

How to get to the diagnostic test:

- ☐ Log into your school IXL account
- ☐ Click on the green box labeled "Step into the Arean" Discover your math and ELA levels
- ☐ When it loads, click on the top right corner where it says "math and language arts" and choose "Math"
- ☐ Answer all the questions that it asks, and do your best (please use SCRAP paper for your work that you complete and attach it to the back of your packet with the title "IXL Math Diagnostic Work"

*You can also work on flagged skills for extra credit:

How to work on flagged skills:

- ☐ Go back to the My IXL page by clicking my IXL at the top
- ☐ In the bottom right corner, find where it says "Study Plans" and click on the blue link "Personal Virginia NWEA MAP growth study plan
- ☐ Make sure the drop down says math and then choose any of the skills you think you need the most work on
- ☐ Go to **recommended skills** specifically for **math** and work on any of the identified skills there as well

Diagnostic Test	Completed the diagnostic test to the **BEST** of my ability to give an accurate reading of my math skill.	/5
Extra Skills	I worked for at least 30 minutes minimum on 1 or more designated skill that I need work on (1 point each; capped @ 5)	/5
Total Points		/10

* Example: How to SHOW your work! *

Order of Operations

Date:

Simplify the following:

1. $8 - |-6| + 3$

$8 - 6 + 3$

$2 + 3$

$\boxed{5}$

2. $1 + 2^4 \div (56 \div 7)$

$2 \times 2 \times 2 \times 2$

4×4

$1 + 16 \div (56 \div 7)$

$1 + 16 \div (8)$

$1 + 2$

$\boxed{3}$

3. $2[45 \div (11 - 8)^2] - 3$

$2[45 \div (3)^2] - 3$

$2[45 \div 9] - 3$

$2[5] - 3$

$15 - 3$

$\boxed{12}$

4. $\dfrac{(4 - 13)^2 - 6}{25 \div 5} - |-2|$

$\dfrac{(-9)^2 - 6}{25 \div 5} - |-2|$

$\dfrac{(81) - 6}{25 \div 5} - 2$

$\dfrac{75}{5} - 2 \quad 15 - 2 = \boxed{13}$

Evaluating Expressions

Date:

Evaluate the following if a = -3, b = 8, and c = -4

1. $9a - 2ab$

$9(-3) - 2(-3)(8)$

$-27 - (-6)(8)$

$-27 - (-48)$

$-27 + 48 = \boxed{21}$

2. $a^2 + 7c - 1$

$(-3)^2 + 7(-4) - 1$

$(-9) + (-28) - 1$

$-37 - 1 = \boxed{-38}$

3. $|10 - 4b|$

$|10 - 4(8)|$

$|10 - 32|$

$|-22|$

$\boxed{22}$

4. $\dfrac{2c^2 + 5b}{a}$

$\dfrac{2(-4)^2 + 5(8)}{-3} \quad \dfrac{32 + 40}{-3}$

$\dfrac{2(16) + 5(8)}{-3} \quad \dfrac{72}{-3} = \boxed{-24}$

5. $\dfrac{-c^2 + 2ac}{c - b}$

$\dfrac{-(-4)^2 + 2(-3)(-4)}{(-4) - 8}$

$\dfrac{-(16) + (-6)(-4)}{(-4) - 8}$

$\dfrac{-16 + 24}{-12} \rightarrow \dfrac{8}{-12} = \boxed{-\dfrac{2}{3}}$

6. $-b^2 - 2\sqrt{7 - 3a}$

$-(8)^2 - 2\sqrt{7 - 3(-3)}$

$-(64) - 2\sqrt{7 + 9}$

$-(64) - 2\sqrt{16}$

$-64 - 2(4)$

$-64 - 8$

$\boxed{-70}$

Unit 1

Adding & Subtracting Fractions (Unlike Bases)

need to find a common denominator using LCM before A|S

ex:

$\frac{6}{9} + \frac{4}{6}$

9 6

3 3 3 2

$3 \times 3 \times 2 = 18$

$\frac{6 \times 2}{9 \times 2} = \frac{12}{18}$

$\frac{4 \times 3}{6 \times 3} = \frac{12}{18}$

$\frac{12}{18} + \frac{12}{18} = \frac{24}{18}$

Date:

1. $5\frac{3}{4} + \left(-\frac{11}{12}\right)$

2. $-\frac{5}{7} + 11\frac{3}{4}$

3. $15\frac{9}{10} - \left(-2\frac{1}{5}\right)$

4. $-3\frac{4}{5} - 4\frac{1}{6}$

5. Adam biked $6\frac{3}{4}$ miles to work and then $3\frac{2}{5}$ miles to the store. How many miles had he biked that day when he arrived at the store?

Unit 1

Multiplying Fractions

change any mixed # to an improper fraction

$4\frac{7}{8}$ $\quad 8 \times 4 = 32 + 7 = 31$

$\hookrightarrow \frac{31}{8}$

then multiply across.

Don't forget to CROSS SIMPLIFY!

$\frac{1}{1}\frac{7}{8} \cdot \frac{16}{24}\frac{2}{3} = \frac{2}{3}$

Date:

1. $2\frac{5}{6} \cdot -3\frac{1}{3}$

2. $5\frac{2}{5} \times 2\frac{1}{9}$

3. $\frac{15}{16}\left(3\frac{1}{10}\right)$

4. $-\frac{3}{4}\left(-2\frac{2}{9}\right)$

5. Kailyn spent $2\frac{1}{3}$ hours at dance class. She spent $\frac{3}{4}$ of that time practicing ballet. How much time did she spend on ballet?

Unit 1

Integers & Absolute Value

absolute value is how far away from zero the # is on the # line.

(makes negatives positive)

Date:

Write an integer for each situation:

1. Spending $45 _____
2. 140 feet above ground _____
3. A drop of 9° _____
4. A $52 deposit _____

Evaluate each expression:

5. $|-32| =$ _____
6. $|105| =$ _____
7. $|-6| =$ _____
8. $|99| =$ _____

Place a < or > in the circle to complete each statement:

9. $|14|$ ◯ -15
10. -8 ◯ -3
11. -12 ◯ -10
12. -9 ◯ $|-11|$

Unit 1

Adding & Subtracting Integers Day 1

Rules:

⊕ + ⊖ = subtract + keep sign of the larger #

⊖ + ⊖ = add like normal + keep negative sign

M/D

same sign = +

diff sign = −

Date:

1. $-3+12=$ _____
2. $-9+21=$ _____
3. $36+14=$ _____
4. $-2+43=$ _____
5. $-13+12=$ _____
6. $-25+9=$ _____
7. $-4-9=$ _____
8. $22-4=$ _____
9. $3-6=$ _____
10. $-7-3=$ _____
11. $-10-2=$ _____
12. $-19-26=$ _____

Unit 1

Dividing Fractions

Convert mixed #'s to improper fractions.
Flip the second fraction.
Multiply across.

Don't forget to CROSS SIMPLIFY!

Date:

1. $-\frac{7}{8} \div -2\frac{3}{14}$

2. $\frac{7}{12} \div 3\frac{1}{16}$

3. $\frac{35}{6} \div -2\frac{3}{16}$

4. $-1\frac{1}{6} \div 4\frac{2}{15}$

5. A $31\frac{1}{2}$ ounce bottle of hand soap is being poured into $6\frac{3}{10}$ ounce bottles. How many bottles can be filled?

Unit 1

Converting Fractions, Decimals & Percents

Frac → decimal.
Divide den. by numerator

$\frac{7}{8} \rightarrow 8\overline{)7.000}$ = .875

6+ ↓ 60 ↓ 56 ↓ 40

Dec. → Frac
Look at place value.
.87 → $\frac{87}{100}$ + simplify

Dec → %
move decimal to right 2 times!

% → Dec
move decimal to left 2 times.

Date:

	Fraction	Decimal	Percent
1		0.203	
2			400%
3	$\frac{1}{8}$		
4		0.9	
5			3%
6	$\frac{11}{20}$		

Unit 1

Mixed Practice

* change one # to a fraction or decimal based on what answer you need

Dec → Fract
Look @ place value
• .187 = $\frac{187}{1000}$ .7 = $\frac{7}{10}$
• simplify

Fract → Dec
• Divide den by num

$1\frac{3}{4} = 4\overline{)3.00}\ 1.75 = 1.75$
28
20

Date:

Express your answer as a fraction in simplest form.

1. $2\frac{2}{3} \times 0.4$
2. $-1\frac{3}{4} \div 1.5$
3. $-6\frac{1}{10} - (-2.5)$

Express your answer as a decimal.

4. $-1.875 \times 1\frac{1}{6}$
5. $-\frac{3}{8} - 2.7$
6. $-\frac{3}{4} + 1.3$

Unit 1

Exponents

exponents are #s that represent how many times you multiply a # by itself

$a^5 = a \cdot a \cdot a \cdot a \cdot a$

Date:

	Expanded Notation	Exponential Expression	Value
1	$8 \cdot 8 \cdot 8 \cdot 8$		
2		14^2	
3	$(-2)(-2)(-2)(-2)(-2)(-2)$		
4	$\frac{1}{4} \cdot \frac{1}{4} \cdot \frac{1}{4}$		
5		x^2y^2	
6	$\frac{m}{n} \cdot \frac{m}{n} \cdot \frac{m}{n} \cdot \frac{m}{n} \cdot \frac{m}{n}$		

Math 7 Review

QUIZ 1

Name: _____

Date: _____ **Per:** _____

1. The water depth of a lake went down 28 inches one year, then went down another 4 inches the following year. Which expression represents the total change in the level of the lake over the two years?

   A. $-4-(-28)$ inches

   B. $-28-(-4)$ inches

   C. $-28+(-4)$ inches

   D. $4+(-28)$ inches

2. A helicopter's altitude dropped 275 feet each minute for 5 consecutive minutes. Which expression represents the change in the helicopter's altitude over this time period?

   A. -275×5

   B. $-275 \div 5$

   C. $-275 \times (-5)$

   D. $-275 \div (-5)$

3. Marla parked her car 3 floors below ground level at a hotel. She got in an elevator and went 25 floors up to her room. Then, she went 16 floors down to go to the fitness center. What floor is the fitness center on? Write your answer in the box.

4. Which number can be placed in the box to make the statement true?

   $$|-6|-(-2) = -32 \div \boxed{?}$$

   A. 4

   B. 8

   C. -4

   D. -8

5. Which expressions are equivalent to $2\frac{1}{4}+\left(-\frac{7}{10}\right)$? Check all that apply.

☐ $2\frac{1}{4}-\left(-\frac{7}{10}\right)$	☐ $-\frac{7}{10}+2\frac{1}{4}$
☐ $2\frac{1}{4}-\frac{7}{10}$	☐ $-\frac{7}{10}-2\frac{1}{4}$
☐ $\frac{7}{10}-\left(-2\frac{1}{4}\right)$	☐ $-2\frac{1}{4}+\frac{7}{10}$

6. Jack is buying $1\frac{5}{8}$ pounds of coffee beans. If the coffee costs \$4.40 per pound, how much will he pay?

   A. \$6.95

   B. \$7.15

   C. \$7.35

   D. \$7.60

7. Sydney needs 15 inches of string to make a necklace. If she has $9\frac{1}{6}$ feet of string, what is the maximum number of necklaces that she can make?

   A. 5

   B. 6

   C. 7

   D. 8

8. Evaluate the expression below. Write your answer in the box.

$$(-6)^3 \div 2 = \square$$

9. Which set of numbers contains only perfect squares?

A. {4, 12, 20, 64}
B. {1, 8, 24, 75}
C. {25, 50, 150, 200}
D. {9, 16, 49, 121}

10. Between which two consecutive numbers does the square root of 18 lie?

A. 3 and 4
B. 4 and 5
C. 6 and 7
D. 9 and 10

11. Write an exponent in the box that makes the statement true.

$$0.0000000027 = 2.7 \times 10^{\square}$$

12. If the set of numbers below is listed from least to greatest, which numbers could be placed in the box? Check all that apply.

$$5.2 \times 10^{-2}, \boxed{?}, \frac{1}{9}$$

☐ $\frac{2}{15}$	☐ 8×10^{-1}	☐ .6%
☐ 12%	☐ $\frac{3}{40}$	☐ 6×10^{-3}

13. Evaluate the expression below.

$$-11-(1+2^3)+\frac{24}{8}$$

A. -17
B. -35
C. -41
D. -23

14. Evaluate the expression below.

$$\left(-\frac{1}{10}-0.45\right) \div \frac{3}{4}$$

A. $-\frac{21}{80}$
B. $-\frac{33}{80}$
C. $-\frac{7}{15}$
D. $-\frac{11}{15}$

15. Which property is used in the statement below?

$$(7+4) \times 2 = 2 \times (7+4)$$

A. Associative Property of Addition
B. Associative Property of Multiplication
C. Commutative Property of Addition
D. Commutative Property of Multiplication

16. Which property of is used in the statement below?

$$(-k+0)+1=-k+1$$

A. Inverse Property of Addition
B. Identity Property of Addition
C. Distributive Property
D. Property of Zero

Unit 2

Combining Like Terms

*Can only combine (add) terms that are the same.

*Remember the sign in front of the # tells you if it's pos/neg!

$7x-3x+2-5+y$

$4x + -3 + y$

Date:

Simplify each expression:

1. $15-8x+3-x$
2. $-12m+5-10+3m$
3. $-4n-6n+9-4n$
4. $22y-14-9y+3-y$
5. $-15x+8y-9y+3x$
6. $12a-9b-7a+6b$

Unit 2

The Distributive Property

Multiply the # outside the ( ) by everything inside.

$5(15x+7)$

$75x+35$

Date:

Simplify each expression:

1. $9(x+3)$
2. $2(x-5)$
3. $-3(m+6)$
4. $-8(r-4)$
5. $5(2c+5)$
6. $-4(9-x)$

Unit 2

Simplifying Expressions

Step 1: Distribute if needed

Step 2: Combine like terms

Date:

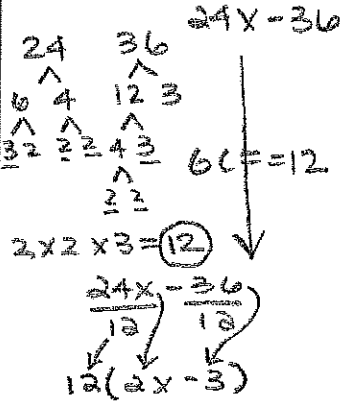
Simplify each expression:

1. $5(p-2)+10$
2. $-3(2x-4)+9x$
3. $2(5x+6)+x-3$
4. $-4-3y+2(y+2)$
5. $8x-2(5x+6)+13x$
6. $-m+3(m-3)+3m+7$

Unit 2

Factoring Expressions

Find the GCF of the two #s. Pull that outside ( ) and simplify inside.



Date:

Factor each expression. If it cannot be factored, write "prime".

1. $8a+48$
2. $9x-18$
3. $8y+50$
4. $16r+15$
5. $30m-9$
6. $81p-15$

Simplify, then factor each expression.

7. $20-5x+9x-6$
8. $3(4y-2)-3y$

Unit 2

Adding, Subtracting & Multiplying Monomials

Rules:

A/S:
combine like terms

$3x^2 + 4x - 2x^2 - 3x$

$x^2 - x$

M/D:
- multiply coefficients
- Add exponents (same variable)

$(5x^2)(10x^3)$
$\hookrightarrow 50x^5$

Date:

Simplify each expression:

1. $4x^2y^6 + 9x^2y^6$
2. $-5m^2 + m + 2m^2 + 10m$
3. $x^2 \cdot x^9$
4. $(-2)^{12} \cdot (-2)^2$
5. $(-7c^3) \cdot (-6c^5)$
6. $(3a^2b^3 + 11a^2b^3) \cdot 2a^5b$

Unit 2

Dividing Monomials

Rule
- Divide the coefficients & subtract the exponents.
- Has to be same variable

$\frac{36m^8}{12m^2} = 3m^6$

Date:

Simplify each expression:

1. $\frac{c^{12}}{c^3}$
2. $\frac{(-5)^7}{(-5)^2}$
3. $\frac{x^{10}y^8}{x^9y^5}$
4. $\frac{24m^9n^{11}}{6m^5n^3}$
5. $\frac{3x^6y^3}{-15xy^2}$
6. $\frac{20d^8}{2d^2 \cdot 5d^3}$

Unit 2

Powers of Monomials

Rule
- use exponent on the coefficient
- multiply the exponent on the variable

$(2x^4)^3$
$\hookrightarrow x^{4\cdot 3}$
$\hookrightarrow 2^3$
$= 8x^{12}$

Date:

Simplify each expression:

1. $(x^2)^6$
2. $(2^3)^4$
3. $(4x^2y^5)^3$
4. $(6a^6b^3)^2$
5. $(5r^4s)^3$
6. $(3^2m^9n^2)^3 \cdot 2m^2n^5$

Unit 3

Multi-Step Equations (Variables on One Side)

Step 1: distribute
Step 2: Combine like terms
Step 3: Isolate the variable & solve.

$49 = 7(x+2)$
$49 = 7x + 14$
$-14 \quad -14$
$\frac{35}{7} = \frac{7x}{7}$
$5 = x$

Date:

Solve each equation:

1. $-8y+2-y=2$
2. $-9+2x-4+3x=-8$
3. $7(1-p)+8p=-1$
4. $31=8w+3(7-w)$
5. $65=-5(1+7n)-n-2$
6. $-8(1-2m)-6(3m+6)=-42$

Unit 3

Multi-Step Equations (Variables on Two Sides)

Step 1: Distribute

Step 2: Combine like terms

Step 3: Move the variable to one side

Step 4: Solve for the variable, using inverse ops.

$$\begin{array}{r} 7x+5=6x+15 \\ -6x \quad\quad -6x \\ \hline x+5=15 \\ -5 \quad -5 \\ \hline x=10 \end{array}$$

Date:

Solve each equation:

1. $4n+2=5n+6$

2. $56-4k=-5k-3k$

3. $23-7x=-1-(3x-4)$

4. $40-5y=-3(8y-7)$

Unit 3

Graphing Inequalities

$\circ$ = $<$ $>$

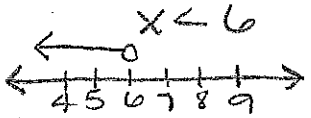
$\bullet$ = $\leq$ $\geq$

arrow points in direction of inequality!

remember this means the variable comes first!

$6 > x \geq 2$

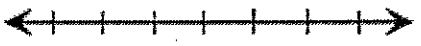
$x < 6$



Date:

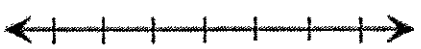
Graph each inequality on the number line:

1. $m \geq 3$

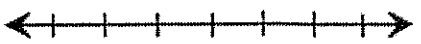


2. $x < -8$

3. $r \leq -6$



4. $12 > b$



Translate each inequality, then graph:

5. "A number is at least ten."

6. "A number is no more than -16."

Unit 4

Proportions

- proportions should = each other

- solve by multiplying diagonally.

$\frac{x}{5} = \frac{4}{20}$

$20 \cdot x = 5 \cdot 4$

$20x = 20$

$x = 1$

Date:

Do the following ratios form proportions?

1. $\frac{10}{20} = \frac{15}{40}$
2. $\frac{5}{18} = \frac{2}{7.2}$
3. $\frac{4}{10} = \frac{3.2}{8}$

Solve the following proportions.

4. $\frac{x}{15} = \frac{21}{45}$
5. $\frac{4}{c} = \frac{3}{9}$
6. $\frac{60}{100} = \frac{v}{15}$

Unit 4

Scale Drawings and Models

Set up scale as a proportion & solve

scale = $\frac{\text{model}}{\text{actual}}$

1:5

$\frac{1}{5} = \frac{\text{model}}{\text{actual}}$

and solve.

Date:

1. On a city map, 1 inch = 0.25 miles. If two buildings are 3.5 inches apart on the map, what is the actual distance between them?

2. Rafael has a model dinosaur that was created using a scale of 0.5 inch = 3 feet. If the actual dinosaur was 45 feet tall, how tall is Rafael's model?

3. Zayne is sketching out his deck. 1.5 inches on the sketch is equal to 2 feet. If he wants his deck to be 15 feet wide, how wide will the sketch be?

Math 7 Review

QUIZ 2

Name: _____

Date: _____ **Per:** _____

1. Evaluate the expression below if $p = 2$ and $q = -7$.

$$(p+q)^2 - 3pq$$

A. 17
B. 32
C. 52
D. 67

2. Evaluate the expression below if $c = -\frac{5}{24}$ and $d = -\frac{3}{8}$.

$$2c + \left|\frac{4}{9}d\right|$$

A. $-\frac{7}{12}$
B. $\frac{7}{12}$
C. $-\frac{1}{4}$
D. $\frac{1}{4}$

3. Which expression is equivalent to $11w + 26 - 5w - 3$?

A. $16w + 23$
B. $16w + 29$
C. $6w + 23$
D. $6w + 29$

4. Simplify the expression below completely.

$$\frac{2}{3}(6x - 45) - 2(3x - 1)$$

A. $-2x - 28$
B. $-2x + 32$
C. $2x - 32$
D. $2x + 28$

5. Solve the equation below for a. Write your answer in the box.

$$-15 = -8 + a$$

$a =$ ☐

6. For which equations is the solution -4? Check all that apply.

☐ $-6 = \frac{p}{-2}$	☐ $-1 = v - (-3)$
☐ $k + (-5) = -9$	☐ $8 = \frac{y}{-2}$
☐ $-28 = -7n$	☐ $\frac{3}{2}a = -6$

7. Solve the equation below for m.

$$-42 = 9 - 3m$$

A. $m = 11$
B. $m = -11$
C. $m = 17$
D. $m = -17$

8. Solve the equation below for h. Write your answer in the box.

$$\frac{h+16}{-3} = -5$$

$h =$

9. Solve the equation below for r.

$$-8\left(2r + \frac{3}{4}\right) = 74$$

A. $r = 2$

B. $r = 4$

C. $r = -5$

D. $r = -9$

10. Solve the equation below for x.

$$29 - 6x = -21 + 4x$$

A. $x = -5$

B. $x = -25$

C. $x = 5$

D. $x = 25$

11. Eight less than two-fifths of the seventh grade students had perfect attendance in the first quarter. If 142 students had perfect attendance, how many seventh grade students are there?

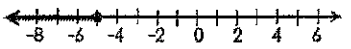
A. 375

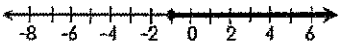
B. 380

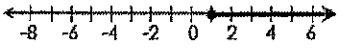
C. 385

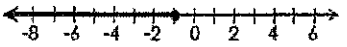
D. 390

12. Which graph represents the solution to the inequality $-3 + m \geq -2$?

A. 

B. 

C. 

D. 

13. Check one inequality in column 1 and one inequality in column 2 with the same solution.

Column 1	Column 2
☐ $-2x > -1$	☐ $5x < -10$
☐ $6 < 3x$	☐ $\frac{x}{-2} < 1$
☐ $7x > -14$	☐ $-4x > -8$

14. Which values of c make the inequality below true? Check all that apply.

$$-4c - 3 > 25$$

☐ -10	☐ -8	☐ -6
☐ -9	☐ -7	☐ -5

15. Mark is starting a new diet and would like to lose at least 30 pounds. If he loses 1.2 pounds each week, which inequality shows the number of weeks, w, he will need to diet?

A. $w \leq 36$

B. $w \geq 36$

C. $w \leq 25$

D. $w \geq 25$

7. The superintendent of a large school district is conducting a survey in which teachers are asked how they prefer to make up snow days. Which sample would provide the least bias?

A. survey all elementary school teachers

B. survey teachers that reside in the district

C. survey every 3rd teacher alphabetically using their last name

D. survey teachers with school-aged children

8. The table below shows the personal best 400-meter dash times for 6 members on the girls' track team.

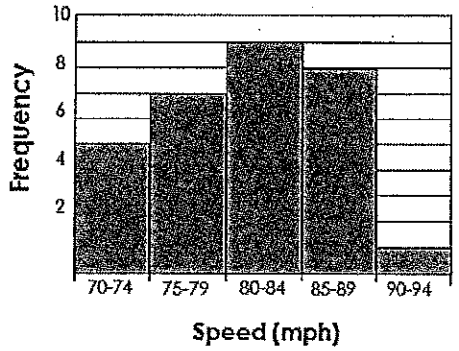
Name	Time, s
Nicole	54
Sheera	55
Janine	57
Corianna	62
Melody	60
Leah	54

If Melody improves her best time to 58 seconds, which statistical measure will change compared to the previous times?

A. mean **C.** mode

B. median **D.** range

9. Malik pitched a baseball 30 times and recorded the speed of each pitch. The results are shown in the histogram below. What is the experimental probability that Malik pitches a ball that is at least 80 miles per hour?



A. $\frac{7}{10}$

B. $\frac{2}{5}$

C. $\frac{3}{10}$

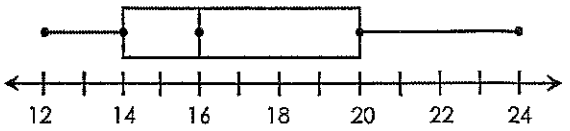
D. $\frac{3}{5}$

10. The stem-and-leaf plot below shows the high temperatures of a city in the first 20 days of June. What is the median temperature? Write your answer in the box.

Stem	Leaf
6	4 7 8 8
7	0 2 4 4 4 5 7 7 9
8	2 3 3 5 6 8
9	4

Key: 6 | 5 = 65°

11. Which data set could be represented by the box-and-whisker plot below?



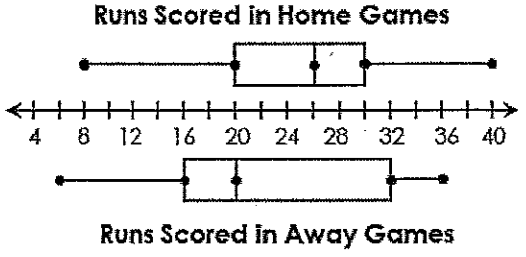
A. {12, 14, 14, 14, 16, 20, 20, 24}

B. {12, 12, 14, 16, 20, 20, 20, 24}

C. {12, 14, 14, 15, 17, 18, 22, 24}

D. {12, 13, 15, 16, 16, 19, 23, 24}

12. The box-and-whisker plot below shows the total number of runs scored by the players on a baseball team in home and away games last season. Which statement is true?



A. The range of runs scored in home games is less than the range of game scored in away games.

B. The interquartile range of runs scored in home games is less than the interquartile range of runs scored in away games.

C. The median number of runs scored in home games is less than the median number of runs scored in away games.

D. The upper quartile of runs scored in home games is greater than the upper quartile of runs scored in away games.

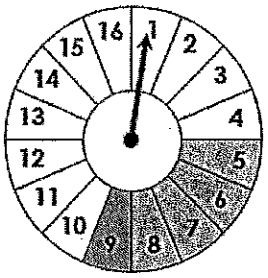
Math 7 Review

QUIZ 6

Name: _____

Date: _____ **Per:** _____

1. If the spinner below is spun once, which events have a probability less than 40%? Check all that apply.



☐ shaded section	☐ at least 10
☐ less than 9	☐ multiple of 3
☐ unshaded section and even number	
☐ greater than 14 or an odd number	

2. Alicia randomly chose a letter in the word BINGO 60 times. The results are shown in the table below. Which correctly gives the experimental and theoretical probability of choosing a vowel?

Letter	B	I	N	G	O
Frequency	12	9	5	16	18

A. Experimental: $\frac{5}{12}$; Theoretical: $\frac{2}{5}$

B. Experimental: $\frac{9}{20}$; Theoretical: $\frac{2}{5}$

C. Experimental: $\frac{5}{12}$; Theoretical: $\frac{3}{5}$

D. Experimental: $\frac{9}{20}$; Theoretical: $\frac{3}{5}$

3. Jackson rolls a standard die 40 times. The results are shown in the table below. Based on his experiment, how many times would you expect him to roll a five out of 200 rolls?

Number	1	2	3	4	5	6
Frequency	3	9	5	8	7	8

A. 33 times

B. 34 times

C. 35 times

D. 36 times

4. There are three questions left on Marty's math test. Two questions are multiple choice with four options each and one is a true/false question. How many ways can Marty answer these questions?

A. 10 ways

B. 24 ways

C. 32 ways

D. 40 ways

5. Jayla has an ace, king, queen, and jack. She randomly chooses a card, then tosses a coin. What is the probability that she gets an ace followed by tails?

A. $\frac{1}{8}$ **C.** $\frac{1}{4}$

B. $\frac{3}{8}$ **D.** $\frac{1}{6}$

6. Rod has 5 quarters, 9 dimes, 8 nickels, and 2 pennies in a jar. He chooses one at random, replaces it, then chooses another. What is the probability that he chose a dime then a penny?

A. $\frac{1}{32}$ **C.** $\frac{1}{12}$

B. $\frac{11}{24}$ **D.** $\frac{5}{48}$

Unit 8

Using Samples to Predict

Unbiased samples are proportional to population

Subject	Frequency
Math	20
Science	18
Art	16
History	12
English	6
Music	8

Unbiased: large, random of large population

biased: favors certain parts of population

* use unbiased samples for predicting outcomes.

Date:

1. To get feedback on a new menu item, a restaurant owner surveys 10 patrons on a Sunday morning. Is this sample biased or unbiased? Explain.

2. The table to the left shows the results of a survey in which a random group of students were asked to give their favorite subject.

   a) What percent said math?

   b) What percent did not say English?

   c) Out of 400 students, how many would you expect to say art?

Unit 8

Measures of Center

means: average
add all values / # of values

median: middle value, if 2 middle values, take average

mode: the value that occurs the most.

Range: largest # - smallest # in the set.

Date:

Find the mean, median, mode(s) and range of the following data sets:

1. {12, 18, 22, 24, 10, 9}

Mean = _____ Median = _____ Mode(s) = _____ Range = _____

2. {7, 4, 7, 8, 2, 4, 11, 8, 5}

Mean = _____ Median = _____ Mode(s) = _____ Range = _____

3. {2, 4, 3, 5, 2, 3, 4, 5, 2, 4, 1, 3, 5, 4}

Mean = _____ Median = _____ Mode(s) = _____ Range = _____

Unit 8

Simple Probability

$\frac{\#\text{ favorable outcomes}}{\#\text{ total outcomes}}$

i.e. probability of drawing a queen from a deck of cards

$\frac{4}{52}$ → 4 = # of queens in a deck; 52 = total cards in deck

$\frac{4}{52} = \frac{1}{13} = .0769 = 7.69\%$

Date:

If a letter from the word THEATERS is chosen, find:

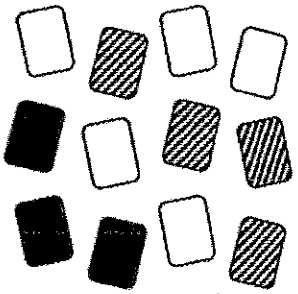
1. P(T)
2. P(R or E)
3. P(not an E)
4. P(vowel or H)

There are 5 red, 3 blue and 2 green Legos in a drawer. If one is drawn at random, find:

5. P(red)
6. P(blue)
7. P(red or blue)
8. P(not blue)

Unit 8

Theoretical vs Experimental Probability



theoretical: what should happens

experimental: what actually happens

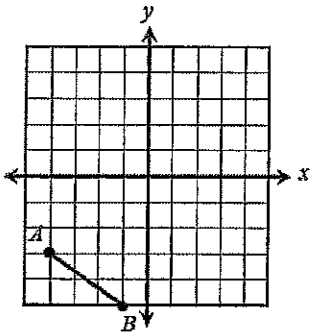
Date:

A card from the deck at the left was chosen 40 times. The results are shown in the table below.

Card	White	Black	Stripes
Frequency	17	11	12

1. Theoretically, what is the probability of picking a card with stripes?
2. Based on the experiment, what is the probability of picking a card with stripes?
3. Based on the experimental probability, if a card is chosen 100 times, how many times can someone expect to pull a card with stripes? Is this more or less than expected?

9. If line segment AB is reflected over the x-axis, what are the coordinates of A'? Write the coordinates in the boxes.



(☐ , ☐)

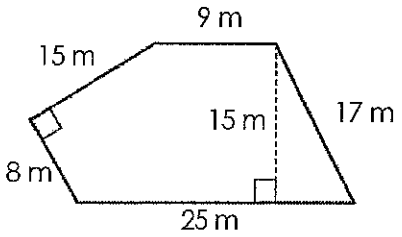
10. Point $R'(-1, -7)$ is the image of point R after a translation of two units up and five units left. What are the coordinates of point R?

A. (1, -12)
B. (-6, -5)
C. (-3, -2)
D. (4, -9)

11. A circular chalkboard has a diameter of 14 inches. A circular frame that is 2 inches wide surrounds the chalkboard. What is the total area of the frame and chalkboard?

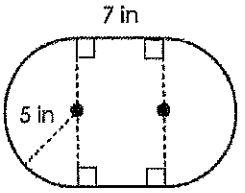
A. 16π in^2
B. 18π in^2
C. 64π in^2
D. 81π in^2

12. Find the total area of the figure below.



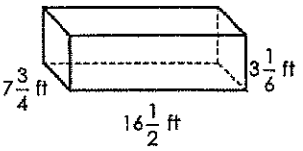
A. 306 m^2
B. 315 m^2
C. 328 m^2
D. 335 m^2

13. Using 3.14 for pi, find the perimeter of the figure below.



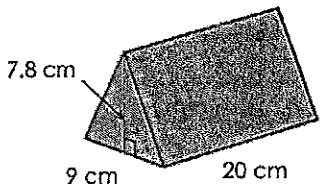
A. 45.4 inches
B. 48.1 inches
C. 52.7 inches
D. 55.2 inches

14. If the height of the rectangular prism below is extended by $1\frac{1}{3}$ feet, find the total surface area of the prism.



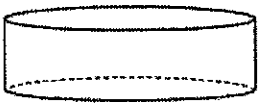
A. 461.75 ft^2
B. 468.5 ft^2
C. 474 ft^2
D. 485 ft^2

15. A solid wood block is in the shape of the prism below. If the wood weighs 0.15 grams per cubic centimeter, find the weight of the block.



A. 82.5 grams
B. 89.4 grams
C. 94.8 grams
D. 105.3 grams

16. The cylinder below has a diameter of 14 meters and a height of 5 meters. Using 3.14 for pi, find the total surface area of the cylinder.



A. 1,539.16 m^2
B. 1,670.48 m^2
C. 496.74 m^2
D. 527.52 m^2

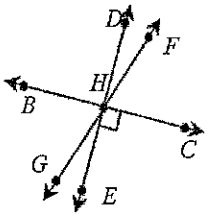
Math 7 Review

QUIZ 5

Name: _____

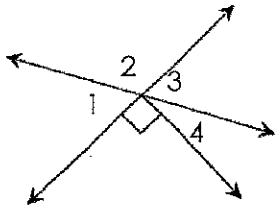
Date: _____ **Per:** _____

1. Given the diagram to the right, which statements are true? Check all that apply.



- ☐ $\angle DHF$ and $\angle GHE$ are vertical and complementary angles.
- ☐ $\angle BHD$ and $\angle EHC$ are vertical and supplementary angles.
- ☐ $\angle BHG$ and $\angle GHE$ are adjacent and complementary angles.
- ☐ $\angle FHC$ and $\angle EHC$ are adjacent and congruent angles.

2. Given the diagram below, if $m\angle 4 = 39°$, find $m\angle 2$. Write your answer in the box.

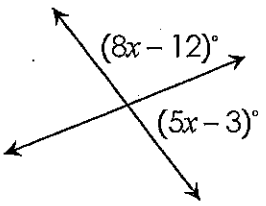


$m\angle 2 =$

3. Which pair of angle measures are complementary?

A. 35° and 35°
B. 50° and 130°
C. 20° and 70°
D. 90° and 90°

4. Solve for x. Write your answer in the box.

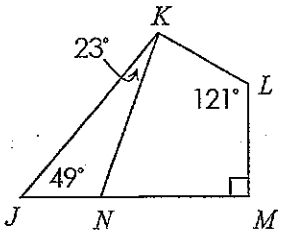


$x =$

5. Which side lengths could not form a triangle?

A. 13 cm, 13 cm, 28 cm
B. 5 cm, 8 cm, 10 cm
C. 18 cm, 24 cm, 30 cm
D. 9 cm, 35 cm, 40 cm

6. Given the diagram below, what is $m\angle NKL$?

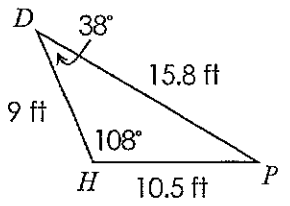


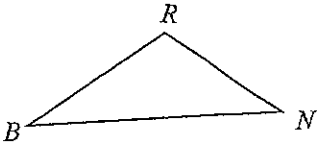
A. 70°
B. 72°
C. 77°
D. 79°

7. Which statement is true?

A. A rectangle is never a parallelogram.
B. A rhombus is sometimes a rectangle.
C. A square is not always a rhombus.
D. A parallelogram is sometimes a quadrilateral.

8. If $\Delta DPH \cong \Delta NBR$, which correctly gives the measure of $\angle B$ and the length of $\overline{NR}$?





A. $m\angle B = 34°$; $NR = 9$ ft
B. $m\angle B = 38°$; $NR = 9$ ft
C. $m\angle B = 34°$; $NR = 10.5$ ft
D. $m\angle B = 38°$; $NR = 10.5$ ft

Unit 7

Surface Area & Volume Review

Surface Area:
1. Create a net
2. Find area of each shape
3. Add all

$SA = 2lw + 2lh + 2wh$

area of base, B ($l \times w$)

$V = B \cdot h$

$SA = 2B +$ area of each side

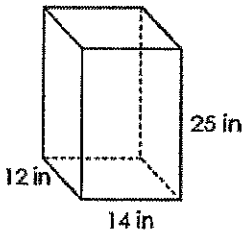
B (area of base $\frac{1}{2}bh$)

$V = B \cdot h$

Date:

Find the surface area and volume. Use 3.14 for pi

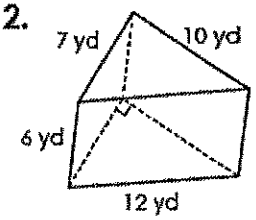
1.



SA = _____

V = _____

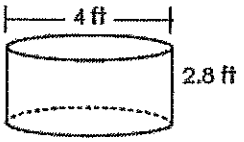
2.



SA = _____

V = _____

3.



SA = _____

V = _____

Unit 7

Surface Area Volume Review

area of base, B

Ex) $SA = 2\pi r^2 + 2\pi r \cdot h$

radius

$V = B \cdot h$

Date:

Draw your surface nets below.

1.

2.

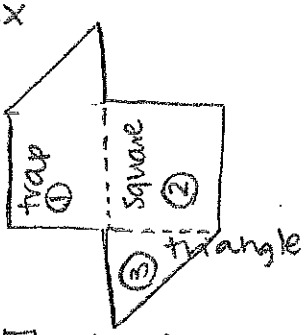
3.

Unit 7

Composite Figures

Find the shapes inside the larger shape. Find area of each and add.

ex



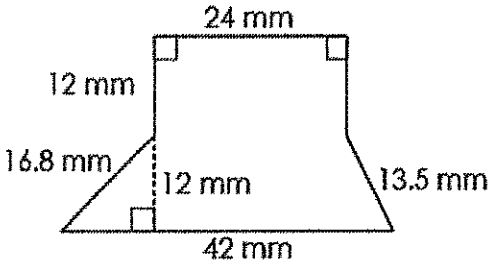
$\square/\square = l \times w$

$\square = \frac{1}{2}h(b_1 + b_2)$

$\triangle = \frac{1}{2}b(h)$

Date:

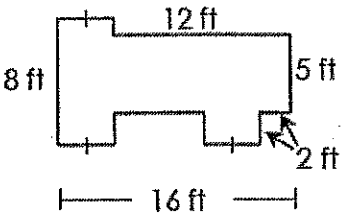
1. Find the area and perimeter



P = _____

A = _____

2. The Millers just put in a new pool. They are having a mural painted on the bottom of the pool before it is filled with water. Find the number of square feet to be painted.



Unit 7

Area of Shaded Regions

$\bigcirc A = \pi r^2$

Find the area of the whole shape first.

Find area of small shape second.

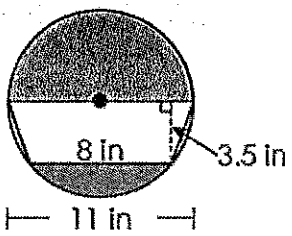
Subtract to find shaded area.

large area − smaller area

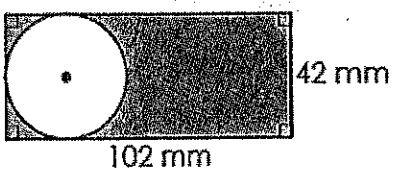
Date:

Find the area of the shaded region. Use 3.14 for pi.

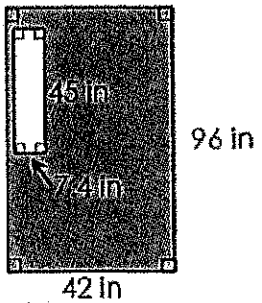
1.



2.



3. Xavier is painting a door. He can paint 1,200 square inches with one small can of paint. How many cans will he need if he paints the front and back of the door?



Unit 6

Triangles

Sum angle theorem: the angles inside a triangle add up to 180°

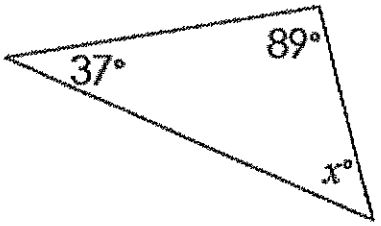
acute - less than 90°
obtuse - Greater than 90°
Right = 90°

scalene - no same sides
isoceles - 2 same sides
right - creates a right angle.

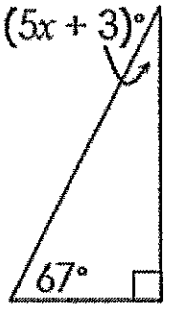
Date:

Find each missing measure.

1.

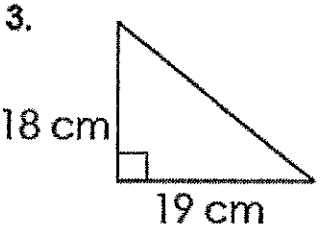


2.



Classify each triangle by its angles and sides.

3.



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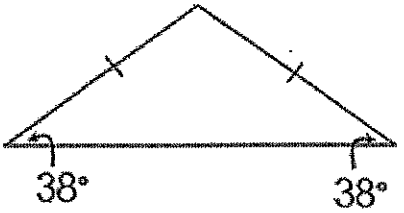


Unit 6

Congruent Polygons

congruent = all sides and angles are the same.

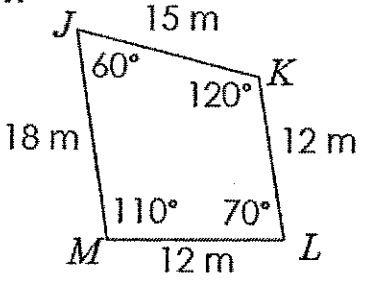
△ABC ≅ △DEF
then
∠A ≅ ∠D
∠B ≅ ∠E
∠C ≅ ∠F

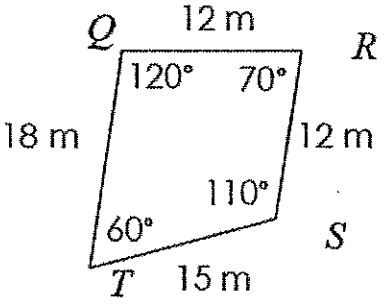
$\overline{AB} \cong \overline{DE}$
$\overline{BC} \cong \overline{EF}$
$\overline{CA} \cong \overline{FD}$

Date:

Determine if the polygons are congruent. If yes, write a congruency statement.

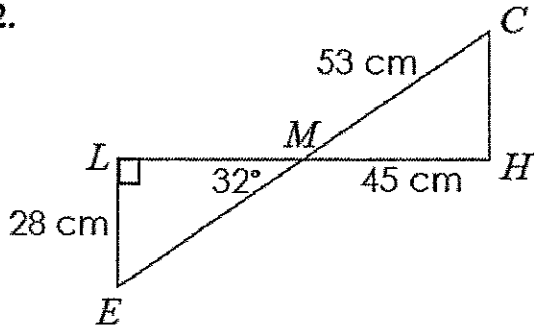
1.





Find each measure if $\Delta ELM \cong \Delta CHM$.

2.



$m\angle E =$ _____

$m\angle H =$ _____

$m\angle C =$ _____

$EM =$ _____

$LM =$ _____

$CH =$ _____

Unit 6

Adjacent and Vertical Angles

Adjacent = next to

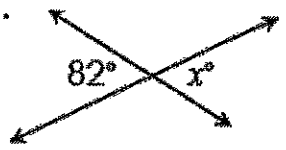
∠ adds to 180

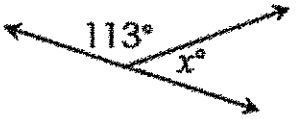
⌐ adds to 90

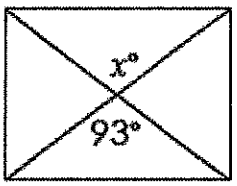
Vertical = across from each other so congruent

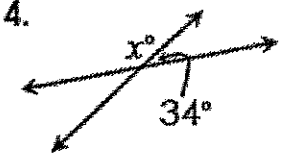
Date:

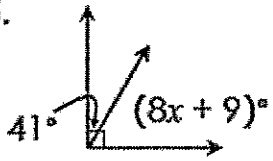
Tell whether the angles are adjacent or vertical, then find the value of x.

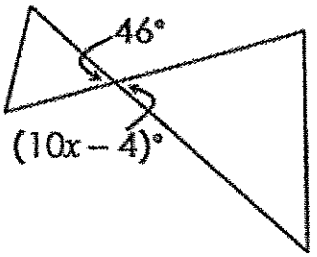
1. 

2. 

3. 

4. 

5. 

6. 

Unit 6

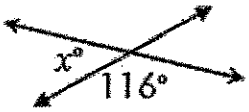
Complementary & Supplementary Angles

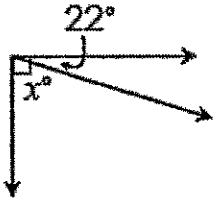
complementary ↳ adds to 90°

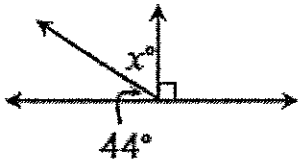
supplementary ↳ adds to 180°

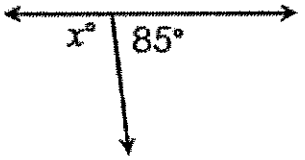
Date:

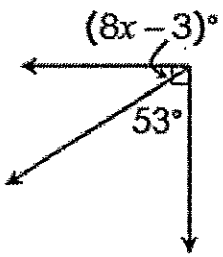
Tell whether the angles are complementary or supplementary, then find the value of x.

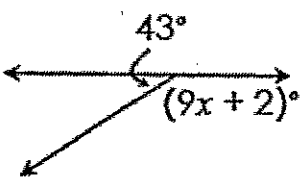
1. 

2. 

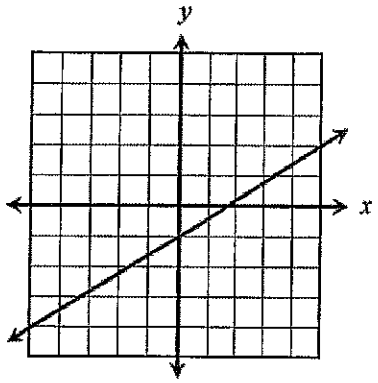
3. 

4. 

5. 

6. 

6. Which equation best represents the function graphed below?



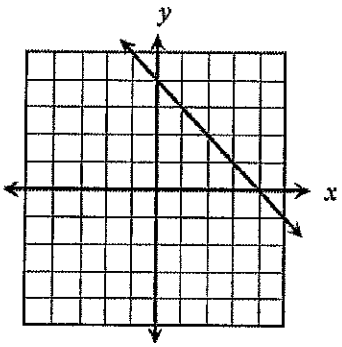
A. $y = \frac{3}{5}x - 1$

B. $y = \frac{5}{3}x - 1$

C. $y = -x + \frac{3}{5}$

D. $y = -x + \frac{5}{3}$

7. Which statement regarding the function graphed below is true?



A. The slope is -4 and the y-intercept is (0, 4).

B. The slope is -4 and the y-intercept is (4, 0).

C. The slope is -1 and the y-intercept is (0, 4).

D. The slope is -1 and the y-intercept is (4, 0).

8. Which of the following table represents a proportional relationship? Check all that apply.

☐

x	y
3	6
4	8
10	5

☐

x	y
0	0
6	15
14	35

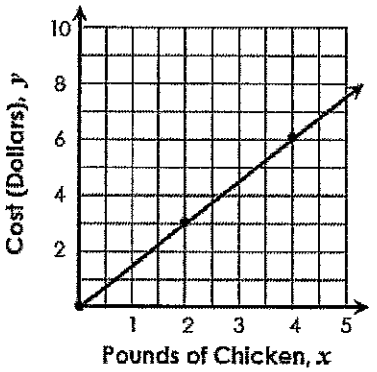
☐

x	y
$1\frac{1}{4}$	$\frac{5}{12}$
$2\frac{2}{3}$	$\frac{8}{9}$
3	1

☐

x	y
1	2
2	3
3	4

9. Identify the constant of proportionality, k, given the graph below.



A. $k = 2$

B. $k = 4$

C. $k = \frac{2}{3}$

D. $k = \frac{3}{2}$

10. The constant of proportionality of a proportional relationship is $\frac{5}{4}$. Which point would not be included on the graph of this relationship?

A. (4, 5)

B. $\left(\frac{6}{5}, \frac{7}{2}\right)$

C. (8, 10)

D. $\left(\frac{2}{3}, \frac{5}{6}\right)$

11. When mixing paint thinner with paint, the amount of paint thinner, t, is directly proportional to the amount of paint, p. For a 32-ounce container of paint, 8 ounces of thinner should be added. Which equation represents this relationship?

A. $t = 4p$

B. $t = \frac{1}{4}p$

C. $tp = 4$

D. $\frac{t}{p} = 4$

12. A person's weight on Earth is directly proportional to their weight on Mars. Kendra weighs 130 pounds on earth and 52 pounds on Mars. If Henry weighs 185 pounds, how much does he weigh on Mars? Write your answer in the box.

Math 7 Review

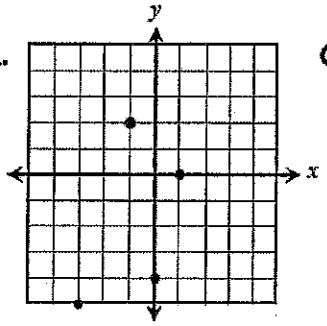
QUIZ 4

Name: _____

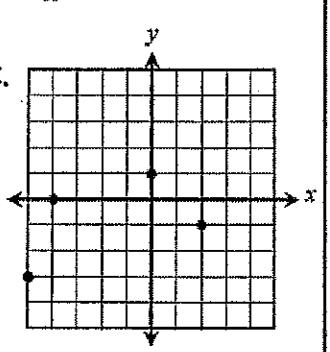
Date: _____ **Per:** _____

1. Which graph represents the relation {(0, 1), (-5, -3), (2, -1), (-4, 0)}?

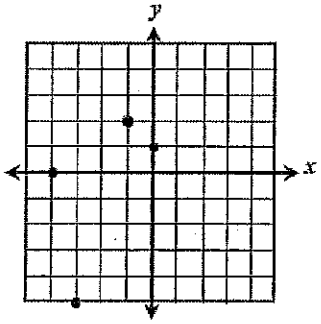
A.



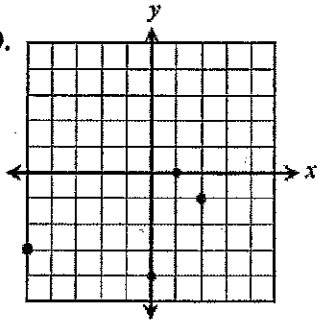
C.



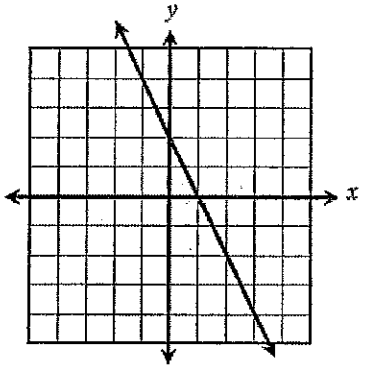
B.



D.



2. Which points lie on the function graphed below? Check all that apply.



☐ (2, -2)	☐ (0, 2)	☐ (3, -4)
☐ (0, 1)	☐ (-4, -1)	☐ (2, 0)

3. Given the function $y = -2x - 7$, complete the function table below. Write your answers directly on the table.

x	-6	-3	0	1
y				

4. Which table contains only the points that lie on the line represented by the function below?

$$y = -\frac{7}{4}x + 2$$

A.

x	y
-3	7.25
1	0.25
4	-7

C.

x	y
-1	3.75
3	-4.25
8	-12

B.

x	y
-4	9
0	2
6	-7.5

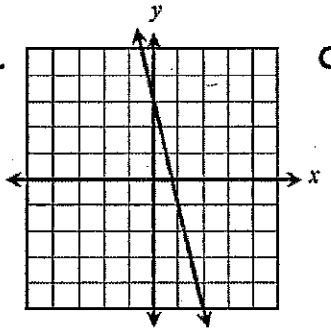
D.

x	y
-8	16
-2	5.5
5	-6.75

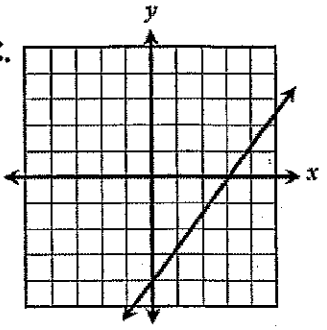
5. Which graph best represents the function given below?

$$y = 3x - 4$$

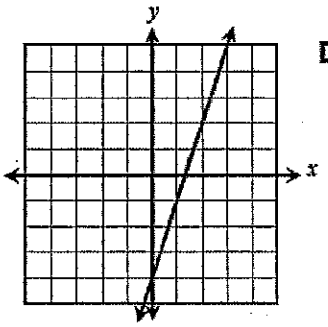
A.



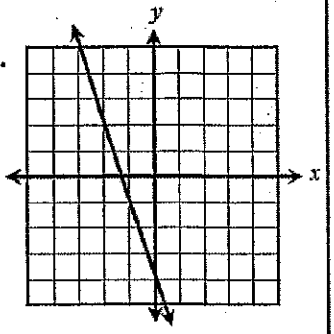
C.



B.



D.



7. A tree casts a shadow 15 feet long. At the same time, an 18-foot flag pole casts a shadow 10 feet long. How tall is the tree? Write your answer in the box.

8. Carrie borrowed money from her sister Melissa. She has been paying her back $80 a month for the past 5 months. If this is 32% of the money that she borrowed, how much money did she borrow?

A. $1,075
B. $1,250
C. $1,300
D. $1,450

9. A clothing store paid $18 for a pair of jeans. They mark the jeans up 60% to sell in the store. If sales tax is 5%, how much will a customer pay for the pair of jeans in total?

A. $29.70
B. $28.80
C. $29.15
D. $30.24

10. Frank bought a watch on sale for $63. If this was 30% off the original price, find the original price of the watch.

A. $88
B. $90
C. $92
D. $95

11. Jack and his two sisters are buying a $1,200 refrigerator for their parents. The fridge is on sale for 15% off and sales tax is 8%. If they evenly divide the cost, how much will they each pay?

A. $321.40
B. $340.85
C. $367.20
D. $395.32

12. Sales associates at an appliance store can choose from the two salary options below. If Landon's sales last week totaled $2,800, which statement is correct?

Option A	$225 per week plus 8.5% commission on sales
Option B	$500 per week with no commission

A. He will make $37 more with Option A.
B. He will make $37 more with Option B.
C. He will make $25 more with Option A.
D. He will make $25 more with Option B.

13. Gary adopted a 15-pound puppy from the SPCA. After three months, the puppy now weighs 24 pounds. By what percent did the puppy's weight increase? Write your answer in the box.

14. Miquel needs a $2,800 loan to buy his girlfriend an engagement ring. Which loan option would allow him to pay the least amount of interest?

A. An 18-month loan with an annual 5.75% simple interest rate
B. A 24-month loan with an annual 4% simple interest rate
C. A 30-month loan with an annual 4.5% simple interest rate
D. A 36-month loan with an annual 3.25% simple interest rate

Math 7 Review

QUIZ 3

Name: _____

Date: _____ **Per:** _____

1. Olivia ran four days last week as part of her marathon training. Her distances and times each day are shown below. If she ran at a constant rate each day, on which day did she run the fastest?

Day	Distance	Time
Monday	3 miles	30 min
Wednesday	3.75 miles	35 min
Thursday	4.5 miles	41 min
Saturday	6 miles	57 min

A. Monday
B. Wednesday
C. Thursday
D. Saturday

2. Michael is driving to his mother's house. After 1 hour and 45 minutes, he is two-thirds of the way there. At this rate, how many total hours will it take Michael to drive to his mother's house?

A. $2\frac{1}{4}$ hours
B. $2\frac{5}{8}$ hours
C. $3\frac{1}{8}$ hours
D. $3\frac{7}{12}$ hours

3. Solve the proportion below.

$$\frac{16}{2.5} = \frac{x}{6}$$

A. 34.6
B. 38.4
C. 41.2
D. 43.8

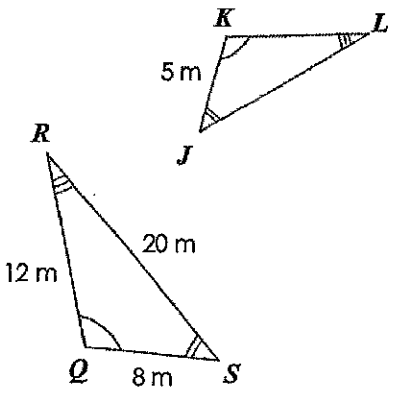
4. It takes 3 gallons of paint to cover 800 square feet of surface. Which proportion can be used to find the number of gallons of paint, g, needed to cover 2,000 square feet of surface? Check all that apply.

☐ $\frac{3}{800} = \frac{2{,}000}{g}$
☐ $\frac{3}{2{,}000} = \frac{800}{g}$
☐ $\frac{800}{2{,}000} = \frac{3}{g}$
☐ $\frac{3}{2{,}000} = \frac{g}{800}$
☐ $\frac{3}{800} = \frac{g}{2{,}000}$
☐ $\frac{800}{g} = \frac{3}{2{,}000}$

5. The scale on a map reads ¾ inches = 60 miles. If two cities are 2 ½ inches apart on the map, find the actual distance between the cities.

A. 175 miles
B. 182.5 miles
C. 190 miles
D. 200 miles

6. If the triangles are similar, find the length of $\overline{KL}$.



A. 7.5 m
B. 8 m
C. 9 m
D. 12.5 m

Unit 4

Discount & Markup

Discount: Find % of the # and subtract that from the original.

Markup: Find % of the # and add that to the original.

Date:

1. A $12 beach towel is discounted 40%. Find the sales price.

2. Michelle earns 15.5% commission selling jewelry. How much will she make if she sells $400 worth of jewelry?

3. Kevin bought a $579 television that was marked down 20%. If sales tax was 6.75%, how much did he pay in total?

Unit 4

Finding Percents Mentally

10%: move decimal to the left 1.

5%: Half of 10%

20%: Double 10%

15%: Add 10% + 5%

Date:

1. Find 5% of 40.

2. Find 15% of 230.

3. What is 20% of 18?

4. Find 10% of 9.

Unit 4

Indirect Measure

Set up as a proportion

$\frac{\text{height}}{\text{shadow}}$

Date:

1. A fire hydrant is 32 inches tall and casts a 40-inch shadow. Emma, who is 48 inches tall, is standing next to the fire hydrant. What is the length of Emma's shadow?

2. A water tower casts a 62-foot shadow. At the same time, a 16-foot tall tree tree next to the water tower casts an 8-foot shadow. How tall is the water tower?

Unit 4

Percent Equations

of means ... !

change % to a decimal.

Date:

1. What is 7.5% of 20?

2. 12.6 is what percent of 42?

3. 1.2 is 15% of what number?