Name: _____ Date: _____

RATES, PATTERNS AND PROBLEM SOLVING
COMMON CORE ALGEBRA I HOMEWORK

FLUENCY

1. Answer the following rate questions based on either multiplication or division. Think carefully about which is required (they will be mixed up). Show the calculation and units that you use.

   (a) A child bought 4 bags of rubber bands to make into bracelets. If there are 80 rubber bands per bag, how many total rubber bands did he buy?

   (b) Kirk has 42 pieces of candy to divide evenly between his three children. If he puts the pieces into three boxes, how many pieces of candy are there per box?

   (c) A car traveling on the Taconic parkway travels 84 miles in two hours. What is the cars speed (a special type of rate) in miles per hour?

   (d) A car salesperson earns a $500 fee per car she sells. If she sells 4 cars in one day, how much money does she earn in fees?

2. If there are 4 quarts in a gallon, and 2 pints in a quart, and 2 cups in a pint, then how many cups are in a gallon? Show your calculation or explain how you arrive at your answer.

3. A person driving along the road moves at a rate of 56 miles per hour driven. How far does the person drive in 1.5 hours? Show the calculation you use in your answer and give your answer proper units.

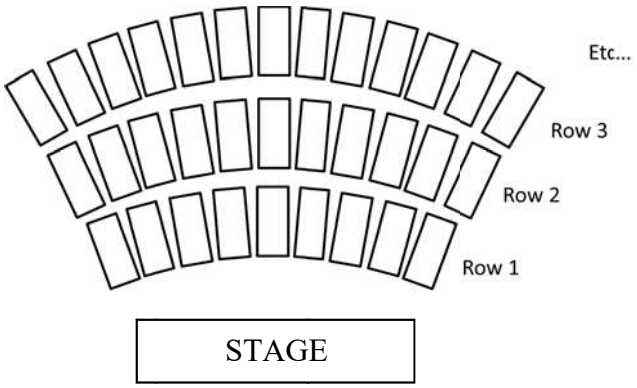
4. Mr. Weiler has 32 students in his class. He wishes to place them into 8 groups of equal size. Which of the following represents the number of students per group?

   (1) 256 (3) 6

   (2) 2 (4) 4

APPLICATIONS

5. Seating in theaters or auditoriums is often arranged such that rows closer to the stage have less seats than rows farther away. An **example** of a seating chart for a theater is shown below.



(a) Assuming this pattern continues, fill out the following table:

Row, r	Number of Seats, S
1	9
2	11
3	
4	
5	
6	
7	

(b) Jonathan tries to mathematically model the number of seats in a given row. He tries to come up with an equation for the number of seats and determines:

$S = 7r + 2$, where S is the number of seats in row, r

Does this equation work for $r = 1$? What about for $r = 2$ and $r = 3$? Show calculations that support your yes/no answers.

(c) The correct equation is: $S = 2r + 7$. Verify this equation matches your table for $r = 1$, $r = 2$, and $r = 3$.

(d) According to the formula from part (c), how many seats are in the 15^{th} row? Show your calculation.

(e) Finally, let's say we know that a certain row has 91 seats in it. Which row is it? Try to set up and solve a simple equation that gives you this answer.

Name: _____ Date: _____

VARIABLES AND EXPRESSIONS
COMMON CORE ALGEBRA I HOMEWORK

FLUENCY

1. Using order of operations evaluate the following numerical expressions. Do not use a calculator for this section.

   (a) $22-2\cdot 6$ (b) $6-\frac{1}{4}\cdot 16+21\div 3$ (c) $\left(8-5\right)\left(5-3\right)^2$

2. Evaluate the following expressions for the values of x given. Show the steps in your calculation.

   (a) $\frac{4\left(x-2\right)}{(x-1)}$ when $x=0$ (b) $\frac{-3x^2+4}{4}-1$ when $x=-2$ (c) $\frac{\frac{-2x}{4}+4(x-1)}{x^2-1}$ when $x=2$

APPLICATIONS

3. Robert just got his first job and is saving 45 dollars a week. He also has 155 dollars saved from his birthday that just passed. To see how much money he will have in his bank account Robert came up with the following expression: $45w+155$, where w is the number of weeks that he has been saving.

   (a) Exactly how much will he have saved in 6 weeks?

   (b) After his first **month** he had more than he expected to have due to interest the bank provided. This let Rob come up with a better expression, $\frac{w^2}{25}+45w+155$, where w is the number of **weeks**. How much will he have in 1 **year**?

REASONING

4. Input the following two expressions into your calculator and see what you get.

(a) $(-5)^2 + 2 * (3+1)$ (b) $-5^2 + 2 * 3 + 1$

(c) Explain what changed from the expression in (a) to (b) and why that changed your answer.

5. Andrew received a 95 on his last test and the only question he got wrong was the following.

(a) Read through the question and Andrew's work. Find and circle his mistake.

(b) Explain what he did wrong and what he should have done.

Evaluate: $x^2 - 2(x-3)$ when $x = 3$.

Andrews work:

$= x^2 - 2(x-3)$

$= 3^2 - 2(3-3)$

$= 3^2 - 2(0)$

$= 9 - 2(0)$

$= 7(0)$

$= 0$

(c) Using your knowledge and abilities show Andrew how to evaluate the expression correctly. State the correct value.

Name: _____ Date: _____

THE COMMUTATIVE AND ASSOCIATIVE PROPERTIES
COMMON CORE ALGEBRA I HOMEWORK

FLUENCY

1. Combine the expressions below. Replace subtraction by addition of opposites, if needed.

(a) $7x+3+6x+11$ (b) $12x+10+3+8x$ (c) $10y+12-7y-8-3y$

(d) $8x-6-7x+10$ (e) $-6x+9+4x-9$ (f) $-4x+5-12-7x+4+2x$

(g) $12x-15-3+2x-15x$ (h) $-7x+4-11-7x+7+2x+12x$ (i) $-2x+18+4x-12-6$

2. Use the associative property to rewrite the following. You do NOT need to simplify these.

(a) $2+\left(3+4\right)=$ (b) $5\times\left(3\times 7\right)=$ (c) $3x-\left(2x+9x\right)$

3. Use the commutative property to rewrite the following. You do NOT need to simplify these.

(a) $6+8+7$ (b) $12x+8x-3x$ (c) $-3y-6y+10y$

APPLICATIONS

4. Sophia and Emily are twin sisters and best friends. They're saving up for concert tickets and agreed to pay for the tickets together when they have enough money. They both created equations to see how fast they were making money and came up with the following expressions:

   Sophia: $35w+55-10w$

   Emily: $28w+75-5w+12$

   where w is the number of weeks they have been saving

   (a) Combine their expressions to see how much they are making together.

   (b) Using the expressions see if they will have above \$350 in four weeks. If not how much will they be short?

   (c) If their friend Becky also wants to join and is making money according to the expression $50w+25$, create a new expression for the total and see if they will have above \$525 for the three of them after four weeks.

REASONING

5. List which of the associative and commutative properties are being used in each step.

$(9x-3)+(10-5x)=9x-3+10-5x$ _____

$9x-3+10-5x=9x-5x-3+10$ _____

$9x-5x-3+10=(9x-5x)+(-3+10)$ _____

$=4x+7$

Name: _____ Date: _____

THE DISTRIBUTIVE PROPERTY
COMMON CORE ALGEBRA I HOMEWORK

FLUENCY

1. Using the equivalent expressions provided find the value of the product on the left by evaluating the expression on the right.

   (a) $5(42) = 5(40+2)$ (b) $3(27) = 3(25+2)$ (c) $5(58) = 5(60-2)$

2. Simplify the following expressions using the distributive property. Show your calculations.

   (a) $2(4x+2)$ (b) $4(3x-1)$ (c) $3(7-x)$

   (d) $\frac{36x+21}{3}$ (e) $\frac{18-36x}{4}$ (f) $\frac{3(4x+8)}{6}$

APPLICATIONS

3. Using your knowledge of the distributive property, rewrite the following and evaluate without using your calculator. See Problem #1 if you need a hint how to do these.

   (a) $6(38) =$ (b) $7(35) =$

4. Nate noticed that when using the distributive property you multiply the term outside the parenthesis by **each** term inside. Using his realization see if you can multiply the following using the distributive property.

(a) $3(246) = 3(200 + 40 + 6)$

(b) $2(3269) = 2(3000 + 200 + 60 + 9)$

(c) $3(2x^2 + 4x + 6)$

(d) $2(5x^3 + 2x^2 + 6x + 9)$

REASONING

5. In the lesson we saw that we can multiply 2 digit numbers by using the distributive property twice. Use this knowledge to multiply the following terms. Show the calculations that lead to you answers.

(a) $(22)(31)$

(b) (52)(11)

6. Which of the following is equivalent to $(2x + 2)(3x + 1)$? It may help to use problem #5(a) as a reference.

(1) $6x^2 + 2$

(3) $6x^2 + 8x + 2$

(2) $5x^2 + 8x + 3$

(4) $16x^3$

Name: _____ Date: _____

EQUIVALENT EXPRESSIONS
COMMON CORE ALGEBRA I HOMEWORK

FLUENCY

1. Use the Associative, Commutative and Distributive properties to write the expression given as an equivalent expression in simplest form.

(a) $2x+8+3x-3$ (b) $3x+(5x+2x)$ (c) $(3x-4)+(2x+1)$

(d) $6(2-3x)+1$ (e) $x+4-2\left(\frac{1}{2}x+3\right)$ (f) $3(x+2)-2(x+1)$

(g) $\frac{12x+18}{6}$ (h) $\frac{2(5x+3)-4}{2}+1$ (i) $\frac{\frac{1}{2}(4x+8)-8}{2}$

2. Factor each of the following by using the distributive property.

(a) $14x+21$ (b) $6-3x$ (c) $(2x+4)+(3x-14)$

APPLICATIONS

3. Four friends have an assortment of Snack bars that cost *S* dollars each, Munch bars that cost *M* dollars each and Chewies that cost *C* dollars each that they sell to raise money for a trip they are taking. They decide to split the money from the sales evenly between the four friends. They create an expression to make sure everyone gets the same amount. The amount each friend receives is given by the complicated expression

$$\frac{(5C+5S)+(2M+4S)+(10C+M)+(C+3S+M)}{4}$$

(a) Write an equivalent expression that simplifies the amount that each friend will earn in terms of the **unit costs** *S*, *M*, and *C*.

(b) If Snack bars cost \$3 each, Munch bars cost \$5 each and Chewies cost \$4.50 each, then how much does each friend earn?

REASONING

4. Taylor is factoring the following expression but notices she got the wrong answer when checking her work. Identify what she did wrong and show her the appropriate way to factor.

Taylor's work:

$12x+3=3(4x)$

Your work:

Taylor's Check:

$3(4x)=12x$ #

Your check:

5. State which property (associative, commutative, or distributive) was used to get from one equivalent expression to the next.

$-2(3x+5)+4(2x-1)$

$=-6x-10+4(2x-1)$ _____

$=-6x-10+8x-4$ _____

$=-6x+8x-10-4$ _____

$=(-6x+8x)+(-10-4)$ _____

$=(-6+8)x-1(10+4)$ _____

$=2x-14$

Name: _____ Date: _____

SEEING STRUCTURE
COMMON CORE ALGEBRA I HOMEWORK

FLUENCY

1. Get a warm-up with the following. Evaluate each expression for the given value of x. Do these without the aid of a calculator to practice your mental arithmetic.

   (a) $3x-8$ for $x=5$ (b) $5(x+7)-1$ for $x=-3$ (c) $\frac{x-8}{4}+5$ for $x=4$

2. If the expression $x-3$ has a value of -5, then which of the following represents the value of $3x-9$? Explain how you arrived at your choice.

   (1) -2 (3) -15

   (2) -9 (4) -42

3. The expression $2x+6$ is equal to 9 for some value of x. Without finding the value of x, determine the values for each of the following expressions. Show how you arrived at each answer.

   (a) $4x+12$ (b) $2x+9$ (c) $x+3$

   (d) $-6x-18$ (e) $2x+1$ (f) $10x+32$

4. The expression $x-2$ has a value of -5 for some value of x. For the same value of x, what is the value of the expression $(x-2)^2+5x-10$? Show your reasoning for this problem in the space provided.

   (1) 0 (3) 14

   (2) 15 (4) -10

APPLICATIONS

5. The number of feet that Jennifer can run in a given time period t is given by the expression $8t+2$. Her friend Erika can run a distance given by the expression $4t+3$. Erika claims that she can only run half of what Jennifer can plus an additional 2 feet. Is she correct?

   (a) Let's build up some evidence by playing around with various values of t. Fill out the following chart for both Jennifer and Erika's distances given the value of t.

Time, t	Jennifer's Distance $8t+2$	Erika's Distance $4t+3$	Is Erika Correct?
1			
3			
5			
10			

   (b) The table provides good numerical evidence that what Erika says is true. Show by using mindful manipulations of the expression $8t+2$ that Erika's distance is always 2 feet more than half of Jennifer's.

REASONING

We can use the same sort of reasoning to help solve equations. We haven't done much of that yet but try your best to think about these problems in the context of solving an equation.

6. Say I knew that the solution to the equation $2x-7=9$ was $x=8$. How could I use that to help me to solve the equation $2(x+2)-7=9$?

   (a) Either $x=6$ or $x=10$ is a solution to our new equation: $2(x+2)-7=9$. Check to see which is a solution by substituting them into the left hand expression and seeing if it is equal to 9.

   (b) Explain in your own words why the correct answer was the one you found in (b). In other words, look at the **structure** of both equations. Think about what is the same and what is different.

Name: _____ Date: _____

EXPONENTS AS REPEATED MULTIPLICATION
COMMON CORE ALGEBRA I HOMEWORK

FLUENCY

1. Rewrite each of the following terms as an extended product. Consider carefully your order of operations and remember that exponents come before multiplication. You do not need to simplify the products.

(a) 4^3 (b) $3^2 \cdot 3^3$ (c) $\left(2^3\right)^4$

(d) x^3y^4 (e) $8x^2y^5$ (f) $\left(9x^2\right)^2$

2. Write out each of the following products and then express them in simplest exponential form.

(a) x^4x^7 (b) y^3y^6 (c) $x^3y^2x^5y^2$

3. Rewrite each of the following as equivalent expressions in simplest exponential form. There is one that cannot be simplified. Identify it.

(a) $4x^3 \cdot 7x^6$ (b) $x^5y^3x^2$ (c) $\left(-x^2\right)\left(3x^{10}\right)$

(d) $x^2y^3z^3$ (e) $\left(4x\right)^3$ (f) $\left(-3x^2\right)^2$

APPLICATIONS

4. One of the most common uses of exponents is when dealing with **scientific notation**. Recall that 3.2×10^4 is written in scientific notation where 10 is being raised to the 4th power. If 3.2×10^4 is the length of a park in meters and 2.5×10^6 is the width in meters, what is the area of the park if it is in the shape of a rectangle? It may help to write the terms out as an extended product and then regroup them.

   $\text{Area} = \text{Length}\times\text{Width} = \left(3.2\times10^4\right)\left(2.5\times10^6\right) =$

REASONING

5. The steps to simplifying the product $\left(2x^3\right)^3$ to simplest terms are shown below. Write in what justifies each step.

   Step 1: $(2x^3)^3 = 2x^3\bullet2x^3\bullet2x^3$ Justification: _____

   Step 2: $2x^3\bullet2x^3\bullet2x^3 = 2\bullet2\bullet2\bullet x^3\bullet x^3\bullet x^3$ Justification: _____

   Step 4: $2\bullet2\bullet2\bullet x^3\bullet x^3\bullet x^3 = (2\bullet2\bullet2)\bullet(x^3\bullet x^3\bullet x^3)$ Justification: _____

   Step 3: $(2\bullet2\bullet2)\bullet(x^3\bullet x^3\bullet x^3) = 8x^9$ Justification: _____

6. So far we have come up with an exponent rule for the multiplying two monomials with like bases. We saw this to be $x^a\cdot x^b = x^{a+b}$. We can also find a rule for simplifying the expression $\left(x^a\right)^b$. Try the following questions and see if you can find the pattern that helps simplify this type of expression.

   (a) Rewrite the following terms as extended products and then express them in the form 2^n or x^n.

   (i) $\left(2^2\right)^4$ (ii) $\left(x^3\right)^4$

   (b) Looking back at part (a) see if you can see a connection between your answer and the question. Make a general rule for all terms in the form of $(x^a)^b$

   $(x^a)^b =$ **KNOW THIS RULE!!!**

Name: _____ Date: _____

MORE COMPLEX EQUIVALENCY
COMMON CORE ALGEBRA I HOMEWORK

FLUENCY

1. Rewrite each expression as a simpler, equivalent expression by first using the Distributive Property and then combining terms.

   (a) $x(x-2)$ (b) $x(x+6)+3(x+6)$ (c) $(x+3)(x+6)$

   (d) $4x(2x+3)$ (e) $(3x-4)(3x+2)$ (f) $(x+3)(x-3)$

   (g) $(3x+4)(2x-1)$ (h) $(x-3)(x-3)$ (i) $(x-2)^2$

2. Which of the following expressions is equivalent to $(x+7)^2$? Test with a value of x. Show your test.

   (1) x^2+49 (3) $(x+7)(x+7)$

   (2) $(x-7)(x+7)$ (4) $(7x)(7x)$

3. Continuing with the expression $(x+7)^2$, do the following.

   (a) By using the Distributive Property twice, show that this expression is equivalent to $x^2+14x+49$.

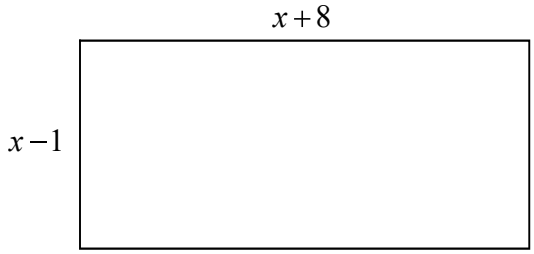
   (b) Test the equivalency by finding the value of $(x+7)^2$ and $x^2+14x+49$ when $x=3$.

   $(x+7)^2$ $x^2+14x+49$

APPLICATION

4. When reading some schematics of a rectangular garden you see the binomial $x+8$ feet represents the length and the binomial $x-1$ feet represents the width. Write an expression that represents the total area of the garden in the form x^2+bx+c by using the distributive property.

   Recall that $\text{Area} = \text{Length} \times \text{Width}$



   (b) Test to make sure that your expression from above is equivalent to $(x-1)(x+8)$ using the following values of *x*. Show your tests for equivalency.

   $x=3$ $\qquad (x-1)(x+8)$ $\qquad$ Your Expression:

   $x=10$ $\qquad (x-1)(x+8)$ $\qquad$ Your Expression:

REASONING

5. Mariah thinks that the following rule should always hold true. Should it? Find evidence for or against the following equivalency rule by substituting various values in for *a* and *b*.

$$(a+b)^2 = a^2+b^2$$

6. Using your understanding of the distributive property, write an equivalent expression of $(a+b)^2$ in terms of *a* and *b*. Hint: if you're having trouble, try referencing problem #2 and #3.

Name: _____ Date: _____

MORE STRUCTURE WORK
COMMON CORE ALGEBRA I HOMEWORK

FLUENCY

1. Rewrite each of the following expressions as an equivalent product of two binomials.

(a) $x(x+2)+3(x+2)$ (b) $x(x-1)-4(x-1)$ (c) $2x(x+4)+3(x+4)$

(d) $-2x(x+12)+3(x+12)$ (e) $3(x-5)+3x(x-5)$ (f) $-4x(x+3)+3x^2(x+3)$

(g) $(2x-7)(x+2)+(3x+7)(x+2)$ (h) $(2x+5)(x-4)-(x-4)(5x+2)$

2. Which of the following choices is equivalent to the expression $(x-2)(6-4x)+(5x+4)(x-2)$? Show the calculations that lead to your choice and check using a value of x.

(1) $(x-2)(x+2)$ (3) $(x-2)(x+10)$

(2) $(x-2)(9x+10)$ (4) $(x-2)(10-9x)$

3. If $x+2$ has a value of 5, then which of the following is the value of $x(x+2)+3(x+2)$? Show the work that leads to your answer.

(1) 30 (3) 15

(2) 25 (4) 10

APPLICATIONS

4. When figuring out the amount of mulch would be needed for Alex's back yard, he created an equation that approximates the number of bags, *B*, he'll use. If his equation is $B = 4(2x+7)+3(2x+7)$ and $(2x+7)$ is equal to 2, how many bags will he need? Show your mindful manipulations.#

5. Alex's friend Pablo comes up with an exact equation to find out how many bags he needs. Use his equation to find out how many bags will actually be needed if $B = x(2x+7)+3(2x+7)+(x+4)(2x+7)$, where the quantity $(2x+7)$ equals 4. Show how you arrive at your answer.

REASONING

6. In most of the previous examples there were only two terms. Extend your work with using the Distributive Law "backwards" and write the following as a product of binomials.

   (a) $x(x+2)+3(x+2)+4x(x+2)$ (b) $2x(x-5)+3(x-5)+(x-1)(x-5)$

7. Write $x(x-2)+3(2-x)$ as a product of binomials. Hint: you may want to manipulate $(2-x)$ first. Check to see if you have written an equivalent expression by testing $x=5$.

Name: _____ Date: _____

TRANSLATING ENGLISH TO ALGEBRA
COMMON CORE ALGEBRA I HOMEWORK

FLUENCY

1. Translate each of the following statements into an algebraic expression.

(a) If x represents a number, then write an expression for a number that is three more than the number.

(b) If x represents a number, then write an expression for a number that is eight less than twice the value of x.

(c) If x represents a number, then write an expression for a number that is three more than one third the value of x.

(d) If n represents a number, then write an expression for two less than one fourth of n.

(e) If g represents Gregs's age and his daughter is 4 years less than one half his age, then write an expression for his daughter's age in terms of the variable g.

(f) If y represents a number, then write an expression for negative two times the sum of y and 7.

(g) If n represents a number, then write an expression for three times the difference of the number and six increased by four times the number.

(h) If k represents a number, then write an expression for the ratio of 3 less than k to 2 more than k.

(i) If n represents a number, then write an expression for the difference of three times the number after it was increased by 3 and twice that number.

(j) If h represents a number, then write an expression for the quotient of twice h and 10 more than h.

(l) If x represents a number, then write an expression for one half the sum of x and 7.

(k) If x represents a number, then write an expression for 7 more then one half the number.

APPLICATIONS

2. The Miller family made mathematical statements out of their ages as follows. Tom is four less than twice Gary's age. Rebecca is the youngest and she is two less than half Gary's age after it was increased by three. Sam's age is the ratio of seven more than Gary's age to eight less than Gary's age.

   (a) Translate each of the Miller family members ages into algebraic expressions in terms of Gary's age, *g*.

   Tom's Age: Rebecca's Age: Sam's Age:

   (b) If Gary is 11 years old how old are each of the family members?

   (c) Using Gary's age come up with an expression that represents your age in terms of *g*. Be creative! For example, if Mr. Weiler is 43 years old, then his age would be $4g-1$.

REASONING

Our future work in this course will necessitate that we work with what are known as **consecutive integers**. Integers are the set of positive and negative whole numbers (as well as zero).

The Integers: $\{....-4,-3,-2,-1,0,1,2,3,4...\}$

Consecutive integers are lists of integers that increase by one unit between each.

3. Fill in the pattern with consecutive integers:

   (a) 2, 3, _____, 5, _____, _____, 8 (b) $n,\ n+1$, _____, $n+3$, _____, _____

4. We can also talk about **consecutive even integers** and **consecutive odd integers**. Fill in the patterns.

   (a) 5, 7, 9, _____, 13, _____, _____ (b) $-10,-8,$ _____, _____, -2, _____

5. Regardless of whether we have consecutive even integers or consecutive odd integers, to get from one to another you add what number? If *n* represents the first in a list of consecutive even (or odd) integers, write out the next three terms.

   What do we add? *n*, _____, _____, _____

Name: _____ Date: _____

ALGEBRAIC PUZZLES
COMMON CORE ALGEBRA I HOMEWORK

FLUENCY

1. Use the table below to find a pattern for the *sum* of *4 times a number* and *twice the sum of the same number and 3*.

Number	Calculation	Results
1		
3		
5		

PATTERN:

Now, let's prove that the result that you see in the table will always be true. Let the number now be called x, write an expression that translates the verbal description given in the problem for our calculation.

2. Use the table below to find a pattern of the *difference* of *one more than six times a number* and *four more than three times the same number*.

Number	Calculation	Results
3		
5		
7		

Try to determine the pattern by allowing the number to be called x. Write an expression that translates the text in italics above and then mindfully manipulate to see the pattern. How would you describe the pattern to a younger student?

3. If t represents a number, which of the following represents the product of 2 more than 5 times a number and 4 less than 3 times a number? Be sure to test a value of t.

(1) $15t^2+26t-8$ (3) $15t^2-8$

(2) $15t^2-14t-8$ (4) $15t^2-26t-8$

APPLICATIONS

4. The length of a rectangle is two less than three times a number x and the width is five more than that same number.

(a) Draw a diagram that represents the rectangle. Be sure to label the sides in terms of the unknown x.

(b) Using your diagram find what the perimeter of the rectangle is in terms of x. Write your answer as a simplified binomial.

(c) What is the area of the rectangle in terms of x? Write your answer as a trinomial. Remember the formula for area of a rectangle is $A=l\bullet w$.

REASONING

5. When finding a pattern for the sum of two times a number n and four less than three times the same number, Cole does the following calculation and decides that the pattern is $3n$. Show why he is wrong and find the correct pattern. Be sure to explain.

Cole's work

Trial

$n=2$

$2(2)+3(2)-4=6$

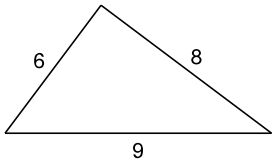
 Name_____

The Pythagorean Theorem

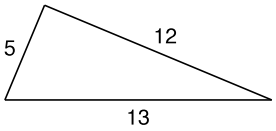
Date_____ Period____

Do the following lengths form a right triangle?

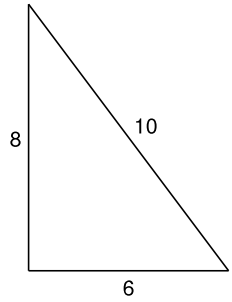
1)



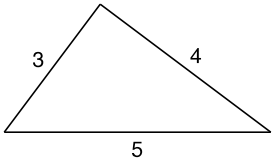
2)



3)



4)

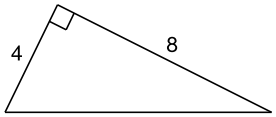


5) *a = 6.4, b = 12, c = 12.2*

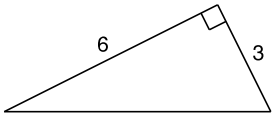
6) *a = 2.1, b = 7.2, c = 7.5*

Find each missing length to the nearest tenth.

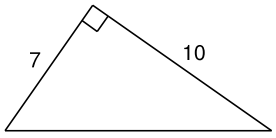
7)



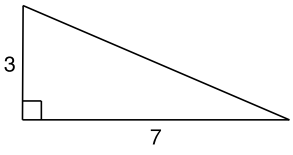
8)



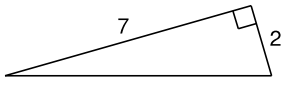
9)



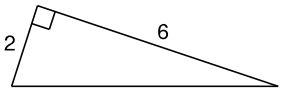
10)



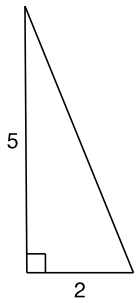
11)



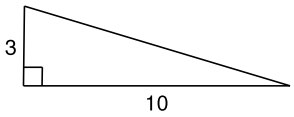
12)



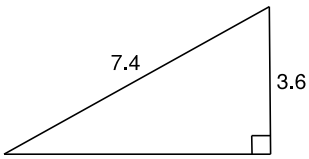
13)



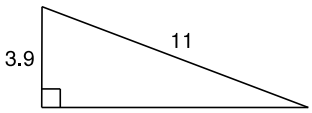
14)



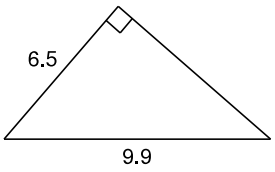
15)



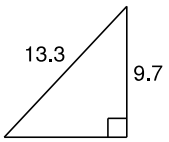
16)



17)



18)



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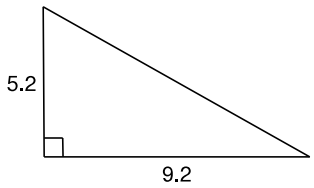
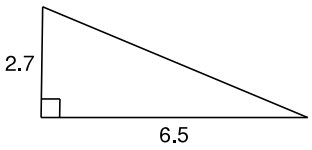
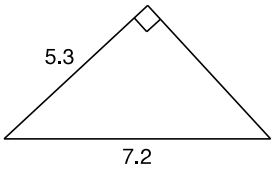


20)



21)



22)