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MA.3.NSO.1.2	16
Compose and decompose four-digit numbers in multiple ways using thousands, hundreds, tens and ones. Demonstrate each composition or decomposition using objects, drawings and expressions or equations.	
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MA.3.NSO.2.2	41
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MA.3.NSO.2.4	53
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Fractions.....59

Understand fractions as numbers and represent fractions.

MA.3.FR.1.1.....60

Represent and interpret unit fractions in the form $\frac{1}{n}$ as the quantity formed by one part when a whole is partitioned into n equal parts.

MA.3.FR.1.2.....69

Represent and interpret fractions, including fractions greater than one, in the form of $\frac{m}{n}$ as the result of adding the unit fraction $\frac{1}{n}$ to itself m times.

MA.3.FR.1.3.....78

Read and write fractions, including fractions greater than one, using standard form, numeral-word form and word form.

Order and compare fractions and identify equivalent fractions.

MA.3.FR.2.1.....84

Plot, order and compare fractional numbers with the same numerator or the same denominator.

MA.3.FR.2.2.....93

Identify equivalent fractions and explain why they are equivalent.

Algebraic Reasoning.....103

Solve multiplication and division problems.

MA.3.AR.1.1104

Apply the distributive property to multiply a one-digit number and two-digit number. Apply properties of multiplication to find a product of one-digit whole numbers.

MA.3.AR.1.2.....110

Solve one- and two-step real-world problems involving any of four operations with whole numbers.



Develop an understanding of equality and multiplication and division.

MA.3.AR.2.1.....117

Restate a division problem as a missing factor problem using the relationship between multiplication and division.

MA.3.AR.2.2.....123

Determine and explain whether an equation involving multiplication or division is true or false.

MA.3.AR.2.3.....128

Determine the unknown whole number in a multiplication or division equation, relating three whole numbers, with the unknown in any position.

Identify numerical patterns, including multiplicative patterns.

MA.3.AR.3.1.....132

Determine and explain whether a whole number from 1 to 1,000 is even or odd.

MA.3.AR.3.2.....137

Determine whether a whole number from 1 to 144 is a multiple of a given one digit number.

MA.3.AR.3.3.....142

Identify, create and extend numerical patterns.

Measurement.....147

Measure attributes of objects and solve problems involving measurement.

MA.3.M.1.1.....148

Select and use appropriate tools to measure the length of an object, the volume of liquid within a beaker and temperature.



MA.3.M.1.2.....158

Solve real-world problems involving any of the four operations with whole number lengths, masses, weights, temperatures or liquid volumes.

Tell and write time and solve problems involving time.

MA.3.M.2.1.....162

Using analog and digital clocks tell and write time to the nearest minute using a.m. and p.m. appropriately.

MA.3.M.2.2170

Solve one- and two-step real-world problems involving elapsed time.

Geometric Reasoning178

Describe and identify relationships between lines and classify quadrilaterals.

MA.3.GR.1.1.....179

Describe and draw points, lines, line segments, rays, intersecting lines, perpendicular lines and parallel lines. Identify these in two-dimensional figures.

MA.3.GR.1.2.....187

Identify and draw quadrilaterals based on their defining attributes. Quadrilaterals include parallelograms, rhombi, rectangles, squares and trapezoids.

MA.3.GR.1.3.....194

Draw line(s) of symmetry in a two-dimensional figure and identify line-symmetric two-dimensional figures.

Solve problems involving the perimeter and area of rectangles.

MA.3.GR.2.1.....201

Explore area as an attribute of a two-dimensional figure by covering the figure with unit squares without gaps or overlaps. Find areas of rectangles by counting unit squares.



MA.3.GR.2.2.....209

Find the area of a rectangle with whole-number side lengths using a visual model and a multiplication formula.

MA.3.GR.2.3.....216

Solve mathematical and real-world problems involving the perimeter and area of rectangles with whole-number side lengths using a visual model and a formula.

MA.3.GR.2.4.....221

Solve mathematical and real-world problems involving the perimeter and area of composite figures composed of non-overlapping rectangles with whole number side lengths.

Data Analysis and Probability.....228

Collect, represent and interpret numerical and categorical data.

MA.3.DP.1.1.....229

Collect and represent numerical and categorical data with whole-number values using tables, scaled pictographs, scaled bar graphs or line plots. Use appropriate titles, labels and units.

MA.3.DP.1.2.....238

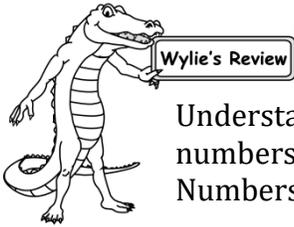
Interpret data with whole-number values represented with tables, scaled pictographs, circle graphs, scaled bar graphs or line plots by solving one- and two-step problems.



Compose and Decompose Numbers

Understand the Place Value of Four-Digit Numbers

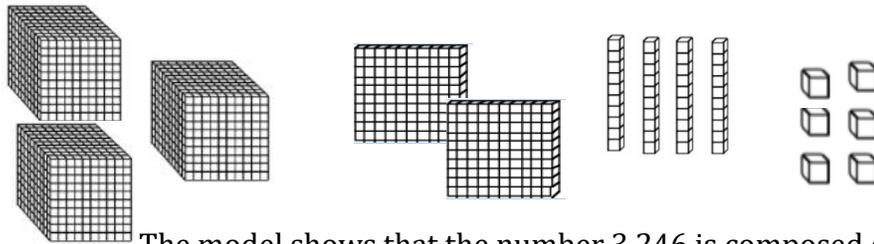
Compose and decompose four-digit numbers in multiple ways using thousands, hundreds, tens and ones. Demonstrate each composition or decomposition using objects, drawings and expressions or equations.



Understanding and working with place value helps us explore and think about numbers. Numbers can be built or **composed** in many different ways. Numbers can also be taken apart or **decomposed** in many different ways.

Base Ten Block models with groupings of ones, tens, hundreds and thousands can be used to compose and decompose numbers.

Look at the model of the whole number 3,246:



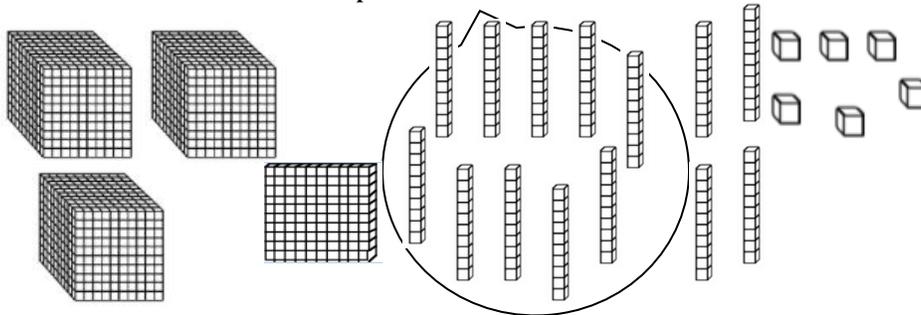
The model shows that the number 3,246 is composed of:

3 thousands + 2 hundreds + 4 tens + 6 ones

$$3000 + 200 + 40 + 6 = 3,246$$

(**equation** showing expanded and standard form)

Let's make a trade. Decompose 1 hundred for 10 tens.



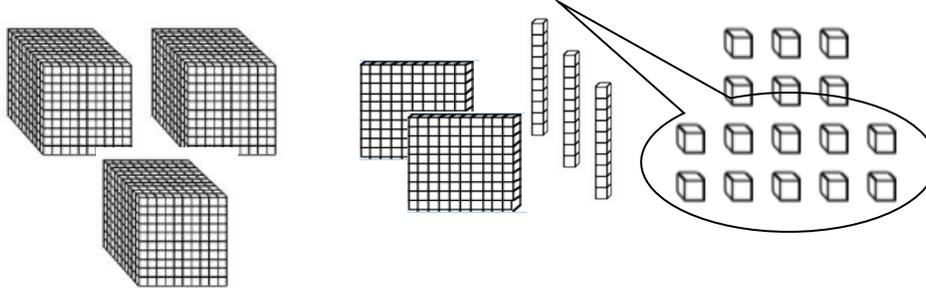
Now 3,246 is composed of: 3 thousands + 1 hundred + 14 tens + 6 ones

$$3000 + 100 + 140 + 6 = 3,246$$



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Number Sense and Operations – MA.3.NS.0.1.2

Let's try another trade. Decompose 1 ten into 10 ones.



In this model 3,246 is composed of:

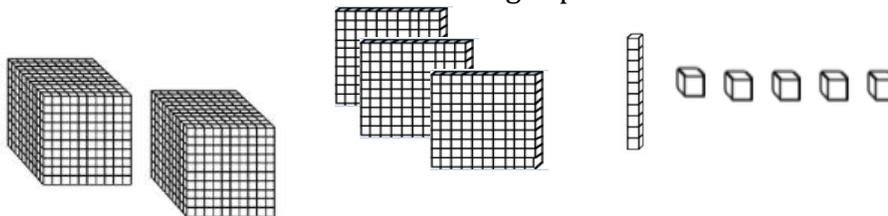
3 thousands + 2 hundreds + 3 tens + 16 ones

$$3000 + 200 + 30 + 16$$

(**expression** showing expanded form)

Using place value to continue to decompose this number, makes it possible to create many more models to represent the same number 3,246. Remember the parts may be different, but together the number is the same and has the same value just as $10 + 4 = 14$ and so does $9 + 5 = 14$.

Example 1: Look at the model below. Decompose 2 hundreds into tens. Draw the new model and fill in the following expression.



2 thousands + 3 hundreds + 1 ten + 5 ones

___ thousands + ___ hundred + ___ tens + ___ ones

What is the standard form of this number? _____

Answer: 2 thousands + 1 hundred + 21 tens + 5 ones Standard form is 2,315



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Algebraic Reasoning– MA.3.AR.2.2

Example 1: Which of these equations are true?

- a. $6 + 6 = 4 \times 3$ b. $21 = 3 \times 7$
c. $40 \div 5 = 1 \times 8$ d. $18 - 9 = 36 \div 6$

Answers:

- a. $6 + 6 = 4 \times 3$ b. $21 = 3 \times 7$ c. $40 \div 5 = 1 \times 8$
 $12 = 12$ $21 = 21$ $8 = 8$
-

Example 2: Determine whether the equation is true or false, and put a check in the box

	True	False
a. $16 \div 4 = 2 \times 2$	<input type="checkbox"/>	<input type="checkbox"/>
b. $9 \times 3 = 30 - 4$	<input type="checkbox"/>	<input type="checkbox"/>
c. $(3 \times 2) + 1 = 49 \div 7$	<input type="checkbox"/>	<input type="checkbox"/>
d. $6 \times 4 = 8 \times 3$	<input type="checkbox"/>	<input type="checkbox"/>
e. $3 + 3 = (5 \times 2) - 1$	<input type="checkbox"/>	<input type="checkbox"/>

Answers:

a, c, and d are true. b and e are false

Example 3: The equation below is false. Make 1 or more changes so that the equation will be true.

$$45 \div 5 = 18 \div 6$$

Possible answers:

$$45 \div 5 = 18 \div 2 \qquad (45 \div 5) - 6 = 18 \div 6$$



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Algebraic Reasoning– MA.3.AR.2.2

Example 4: Complete the following to make 2 true equations. Use multiplication in one of the equations and division for the other.

$$6 + 2 = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$$

$$6 + 2 = \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$$

Possible answers:

$$6 + 2 = 2 \times 4, \quad 6 + 2 = 8 \times 1$$

$$6 + 2 = 32 \div 4, \quad 6 + 2 = 64 \div 8$$



Now Try These:

For 1 – 4, Equation Editor

Determine whether the equations are true or false. Write your choice on the line.

1. $\frac{14}{2 \times 7}$


2. $\frac{4 \times 4}{36 \div 4}$


3. $\frac{18 \div 2}{3 \times 3}$


4. $\frac{6}{30 \div 5}$


5. Open Response

Explain your choice for problem 4 above.

For 6-7, Multiselect

6. Which equations are true?

- A. $5 = 35 \div 7$
- B. $48 \div 6 = 8 \times 1$
- C. $27 \div 3 = (5 \times 1) + 3$
- D. $6 \times 9 = (7 \times 7) + (20 \div 4)$
- E. $63 = 7 \times (3 \times 2)$

7. Which equations are false?

- A. $4 = 28 \div 7$
- B. $6 \times 7 = 48$
- C. $(3 \times 5) + 1 = 4 \times 4$
- D. $32 \div 4 = 54 \div 9$
- E. $7 \times 8 = (5 \times 9) + 10$

For 8-12, Matching Item

Determine whether the equations are true or false and put a check in the box.

	True	False
8. $16 \div 8 = 2 \times 1$		
9. $8 \times 3 = 26 - 4$		
10. $(2 \times 2) + 3 = 56 \div 8$		
11. $6 \times 6 = 9 \times 4$		
12. $3 + 7 = (5 \times 3) - 3$		



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Algebraic Reasoning- MA.3.AR.2.2

For 13-14, Multiple Choice

Select the expression that will complete the equation and make it true.

13. $4 \times 9 =$

A. $(9 \times 3) + 1$

B. $(3 \times 2) \times 6$

C. $9 + (4 \times 8)$

D. $4 \times (12 - 7)$

14. $56 \div 7 =$

A. $40 \div 5$

B. $(10 - 3) \times 1$

C. $(60 + 4) \div 8$

D. $4 \times (8 \div 2)$

For 15 - 17 Equation Editor

The following equations are false. Make 1 or more changes so that the equation will be true.

15. $54 \div 9 = 10 \div 2$

16. $(6 \times 5) + 2 = 4 \times 7$

17. $(6 \times 6) + 1 = 5 \times 7$

18. Open Response

Explain your solution for problem 17.

For 19- 20, Equation Editor

Complete the following to make 2 true equations. Use multiplication in one of the equations and division for the other.

19.

$5 + 1 =$ _____ \times _____

20.

_____ \div _____ $= 5 + 1$



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Algebraic Reasoning – MA.3.AR.2.3

For 15-17, Multiselect

15. In which of the following two equations is 8 the unknown number?

- A. $2 \times q = 8$
- B. $24 = q \times 4$
- C. $2 = 16 \div q$
- D. $q \times 7 = 56$
- E. $4 \times 4 = q$

16. Find two equations in which 3 is represented by the letter f .

- A. $9 \times f = 27$
- B. $28 \div 7 = f$
- C. $15 = 5 \times f$
- D. $30 \div f = 5$
- E. $24 \div 6 = f$

17. Find two equations in which 6 is represented by the letter e .

- A. $3 \times e = 24$
- B. $32 \div e = 4$
- C. $48 = 8 \times e$
- D. $6 = 36 \div e$
- E. $6 \times 2 = e$

For 18-20, Multiple Choice

18. Determine the equation in which 4 is not the unknown value.

- A. $28 \div h = 7$
- B. $6 \times h = 18$
- C. $24 \div h = 6$
- D. $32 = 8 \times h$

19. Determine the equation in which 7 is not the unknown value.

- A. $28 = 4 \times d$
- B. $d = 42 \div 6$
- C. $21 = d \times 3$
- D. $9 \times d = 72$

20. Determine the equation in which 5 is not the unknown value.

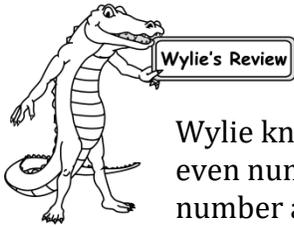
- A. $7 \times g = 35$
- B. $25 \div 5 = g$
- C. $24 = 8 \times g$
- D. $g = 45 \div 9$



Determine and Explain Even or Odd

Identify Numerical Patterns, including Multiplicative Patterns.

Determine and explain whether a whole number from 1 to 1,000 is even or odd.



Wylie knows that all whole numbers can be identified as **even** or **odd**. In an even number, there is always a 2, 4, 6, 8, or 0 in the ones place. An odd number always has a 1, 3, 5, 7, or 9 in the ones place.

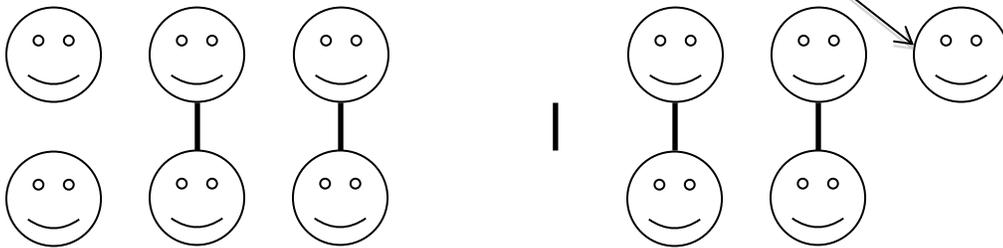
EVEN Numbers

6 32 458
980 5,094

ODD Numbers

7 45 367
923 6,081

An even number can always be shown as pairs and will have nothing left over. If an odd number is put in pairs, there will always be one left over.



6 is an even number

5 is an odd number

Understanding even and odd numbers can also help make predictions about answers in addition and multiplication problems.

	Add +	Multiply x
Even - Even	Even Sum $2 + 4 = 6$	Even Product $4 \times 2 = 8$
Odd - Even	Odd Sum $6 + 3 = 9$	Even Product $3 \times 4 = 12$
Odd - Odd	Even Sum $3 + 7 = 10$	Odd Product $5 \times 3 = 15$



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Algebraic Reasoning– MA.3.AR.3.3

Example 1: What are the 6th and 7th terms in this pattern?

4, 10, 16, 22, 28, _____, _____

Answers:

The 6th term is 34 and the 7th is 40. The numbers increase by adding 6.

4, 10, 16, 22, 28, _____, _____
+6 +6 +6 +6

Example 2: How does this pattern change from term to term?

55, 45, 35, 25, 15, 5

a. + 10

b. -10

c. ÷ 5

d. × 5

Answers:

b. - 10 The pattern decreases by -10 between each term

Example 3: Write the pattern in the following problem and answer the question.

Alicia likes to use a pattern to fill the pages in her sticker book. The first page has 2 stickers. The second page has 4 stickers. The third page has 8 stickers and 16 stickers are on the fourth page. How many stickers will be on the fifth page?

Answers:

The pattern is 2, 4, 8, 16, 32. 32 stickers will be on the fifth page. Each term is x 2 in this pattern, or the term is doubled

Example 4: Examine the pattern and complete the missing terms. Then explain your thinking and the pattern.

28, 25, _____, 19, 16, _____, 10

Answers:

The third term is 22 and the sixth term is 13. Explanation should include ideas similar to this. The pattern decreases. The difference between the terms is -3.



**Everglades K-12 Publishing's Florida B.E.S.T. Standards: Mathematics Grade 3
Algebraic Reasoning– MA.3.AR.3.3**

Now Try These:

For 1-4, Multiple Choice

What are the next two terms in the pattern?

1. 7, 14, 21, 28, _____, _____
 A. 35, 40
 B. 37, 42
 C. 35, 42
 D. 38, 44

2. 28, 24, 20, 16, _____, _____
 A. 14, 10
 B. 12, 8
 C. 12, 4
 D. 10, 6

3. 32, 16, 8, 4, _____, _____
 A. 2, 2
 B. 3, 2
 C. 3, 1
 D. 2, 1

4. 3, 6, 12, 24, _____, _____
 A. 48, 96
 B. 36, 48
 C. 36, 72
 D. 48, 88

For 5-8, Equation Editor

Complete the missing term in the following patterns.

5. 40, 34, _____, 22, 16

6. _____, 23, 33, 43, 53

7. 7, 15, 23, 31, _____

8. 24, 19, 14, _____, 4

9. Gridded-Response

Grid the missing term in the pattern.

17, _____, 31, 38, 45,

	/	/	/	/	/	
0	0	0	0	0	0	0
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9



Everglades K-12 Publishing's Florida B.E.S.T. Standards: Mathematics Grade 3
Algebraic Reasoning– MA.3.AR.3.3

For 10-13, Multiple Choice

Identify how the pattern changes.

10. 35, 32, 29, 26, 23

- A. + 3
- B. - 3
- C. \times 3
- D. \div 3

11. 1, 3, 9, 27, 81

- A. + 3
- B. - 3
- C. \times 3
- D. \div 3

12. 50, 54, 58, 62, 66

- A. + 4
- B. - 4
- C. + 5
- D. - 5

13. 23, 28, 33, 38, 43

- A. + 4
- B. - 4
- C. + 5
- D. - 5

14. Equation Editor

Solve the following problem.

Jared is building a colorful tile pattern on his kitchen wall. The first row has 8 tiles. The second row has 11 tiles. The third row has 14 and the fourth row has 17 tiles. How many tiles will be in the fifth row?

15. Open Response

Explain your answer for problem 15.

16. Equation Editor

Solve the following problem

Bella and Lily are going to share a tasty sundae. One topping costs 20¢. Two toppings cost 35¢ and three toppings cost 50¢. Four toppings cost 65¢. If this pattern is followed, how much will five toppings on the sundae cost?

17. Open Response

Explain your answer for problem 15.



Everglades K-12 Publishing's Florida B.E.S.T. Standards: Mathematics Grade 3
Algebraic Reasoning– MA.3.AR.3.3

For 18-19, Equation Editor

Solve the following problem.

Aunt Rosemarie puts dimes in her young nephew's piggy bank every day. She follows this pattern of dimes.

Day 1 Day 2 Day 3 Day 4

5 dimes, 7 dimes, 9 dimes, 11 dimes

How many dimes will Aunt Rosemarie put in the piggy bank on

Day 5 _____ dimes

Day 6 _____ dimes

19. What is the total number of dimes that will be in the piggy bank?

_____ dimes

How much money is this?

20. Open Response

Create your own number pattern using 6 numbers. Explain your pattern.

_____, _____, _____, _____, _____, _____



Everglades K-12 Publishing's Florida Standards: Mathematics Grade 3
Measurement – MA.3.M.2.2

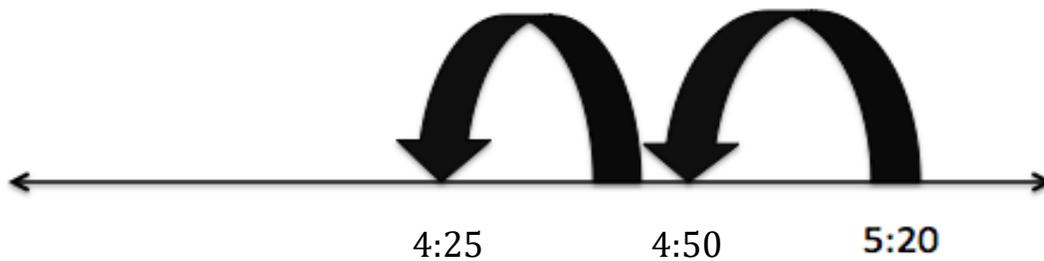
Example 3: Jake was working on his homework. He spent 25 minutes on math and 30 minutes on reading. When he finished his homework, it was 5:20. At what time did Jake begin working on his homework?

This is a “Situation 3” problem. The end time and elapsed times are known. The problem asks for the start time.



In this problem, Wylie works backwards, subtracting the elapsed time from the end time to find the start time.

Math homework	Reading homework
25 minutes	30 minutes



Answers:

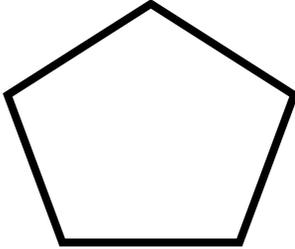
$25 + 30 = 55$ minutes $5:20$ minus 55 minutes is 4:25



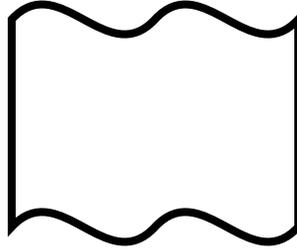
Everglades K-12 Publishing's Mathematics Florida Standards Grade 3
Geometric Reasoning – MA.3.GR.2.1

Example 1: Shade in the area of the figures below.

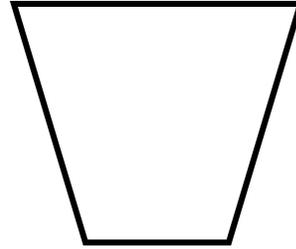
a.



b.

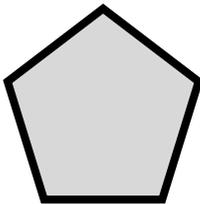


c.

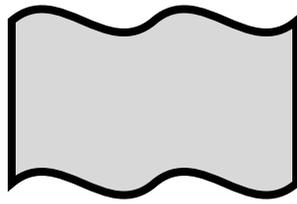


Answers:

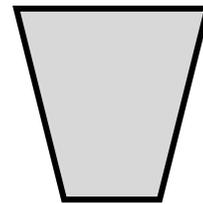
a.



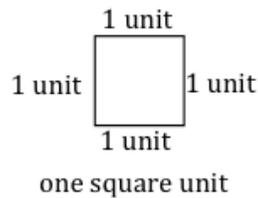
b.



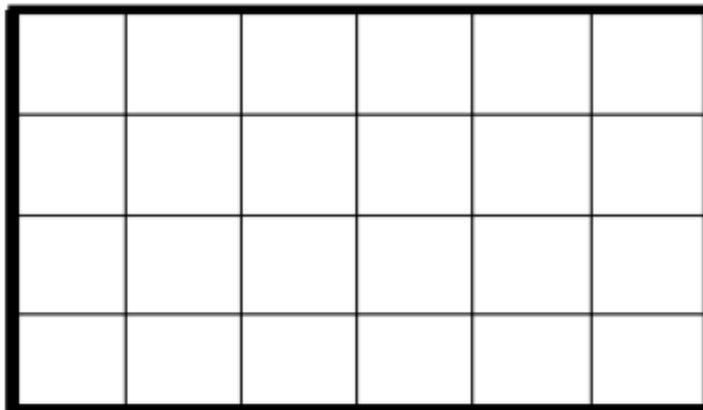
c.



Measuring the amount of surface inside a shape is finding the area of the shape. The area of plane figures is measured by unit squares.

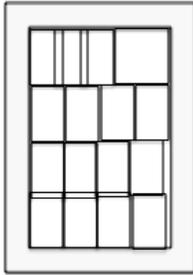


When these squares are inside the plane figure without gaps (spaces) or overlaps, the area of the shape can be determined.

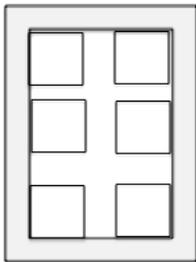


Everglades K-12 Publishing's Mathematics Florida Standards Grade 3
Geometric Reasoning – MA.3.GR.2.1

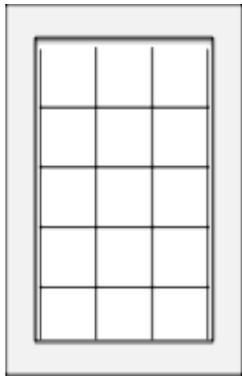
Look at these windows carefully.



This area could not be determined because the measuring units are not all squares. There are some gaps or spaces and some overlap.

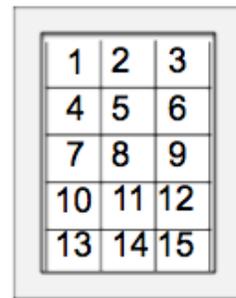


This area could not be determined because although the measuring units are squares, there are many gaps.



This area could be determined because all of the measuring units are squares with no gaps or overlaps.

Count the unit squares to determine the area.



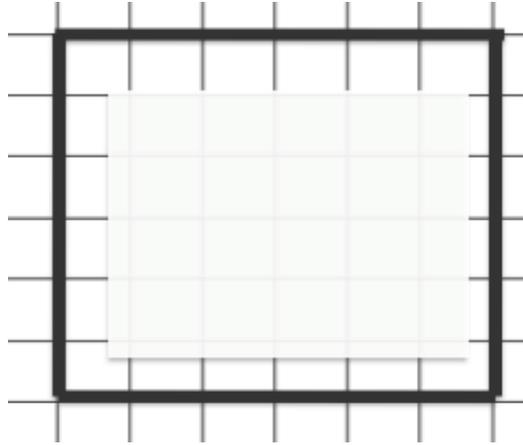
The area of the window is 15 square units.

A = 15 square units

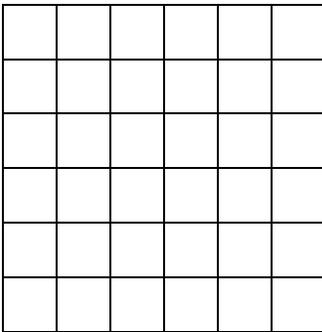


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Example 2: Use your pencil to finish drawing the unit squares in the area of the plane figure. Then count the squares to determine the area.

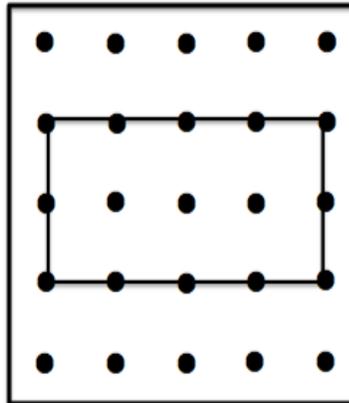


Answers:

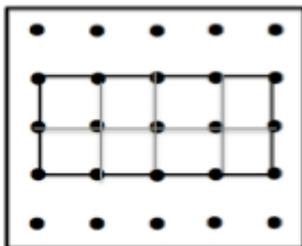


The area is 36 square units

Example 3: Use your pencil to create the unit squares to measure the area of the quadrilateral on the geoboard dot paper.



Answers:



Area = 8 square units



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Now Try These:

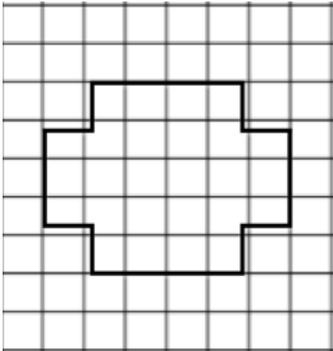
For 1 – 5, Equation Response

Shade in the area of the plane figures.

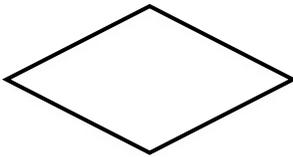
1.



2.



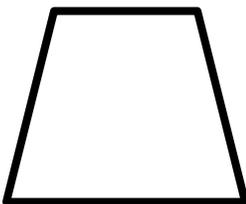
3.



4.



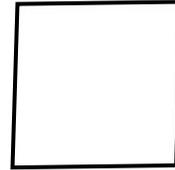
5.



6. Multiselect

Which of the following could NOT be used to measure the area of a plane figure in square units?

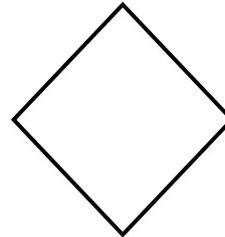
A.



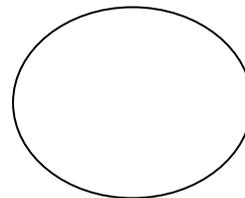
B.



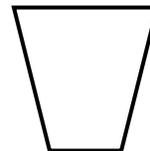
C.



D.



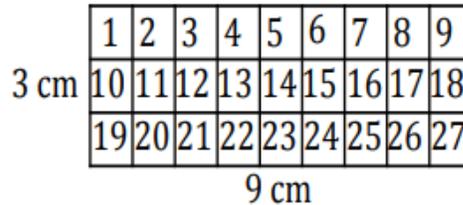
E.



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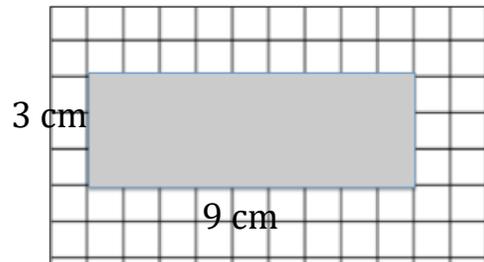
Wylie has drawn a rectangle 9 centimeters by 3 centimeters on grid paper. To find the area of the rectangle he knows to count the number of square centimeters needed to cover the inside of the rectangle. There are 27 square centimeters inside the rectangle.

Area = 27 square centimeters



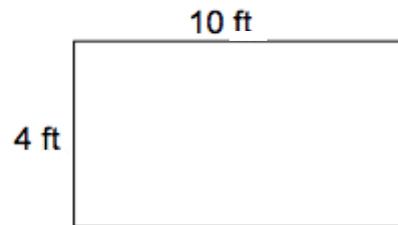
Wylie notices that $9 \times 3 = 27$. Instead of counting each of the 27 square centimeters, he can use the square units to help determine the measures of the sides of the figure. Multiply the sides of the rectangle, 9 cm x 3 cm, to get the area of the rectangle.

Area = 27 square centimeters



Now determine the area of this shape using the given side measures.

Area = 40 square feet



In the above rectangles 3 cm and 4 ft represent the *width* of the rectangle. 9 cm and 10 ft represent the *length* of the rectangle. Therefore, the area of a rectangle can be determined by multiplying the length (l) x the width (w).

$$A = l \times w \quad \text{or} \quad l \times w = A$$

$$\text{Area} = \text{length} \times \text{width} \quad \text{length} \times \text{width} = \text{Area}$$

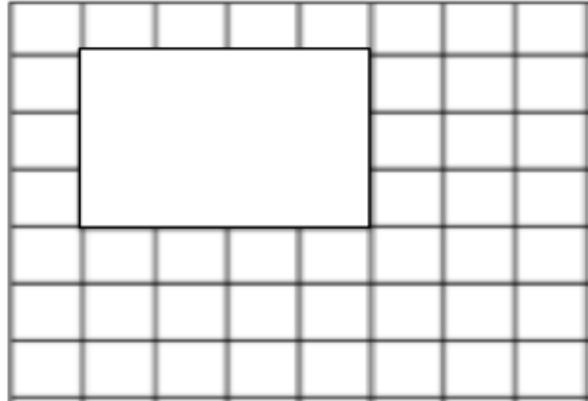
$$9 \text{ cm} \times 3 \text{ cm} = 27 \text{ square centimeters}$$

$$10 \text{ ft} \times 4 \text{ ft} = 40 \text{ square feet}$$



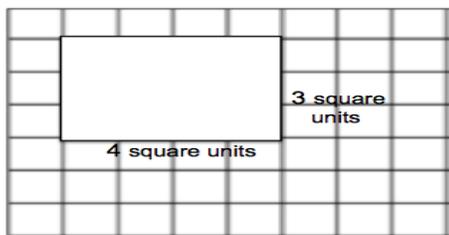
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Example 1: Find the area of the rectangle using the square units to determine the measures of the sides. Write in the measures of the sides and find the area.



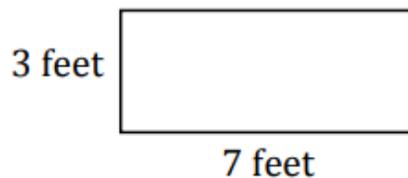
key: $\square = 1$ square unit

Answer:



Area = 12 square units

Example 2: The polygon below represents a rectangle with a width of 3 feet and a length that measures 7 feet. What is the area of the rectangle?



Which of the following correctly shows finding the area of this rectangle?

- a. $3 \times 3 = 9$ square feet
- b. $7 \times 7 = 49$ square feet
- c. $7 \times 3 = 21$ square feet
- d. $7 + 3 = 10$ square feet

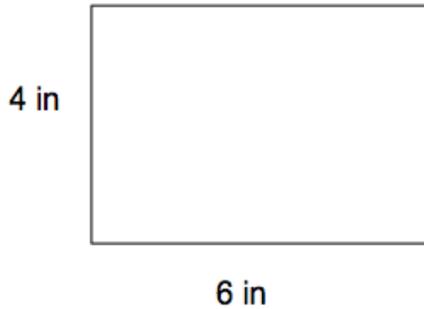
Answer:

The correct choice is c. $7 \times 3 = 21$ square feet



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Example 3: Determine the area of this quadrilateral.

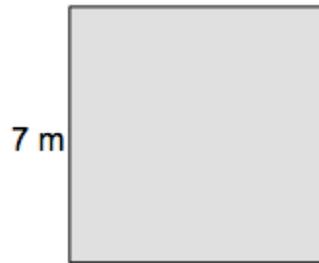


Area = _____ square inches

Answers:

Area = 24 square inches

Example 4: Determine the area of the following square.



Hint: What is known about the sides of squares? Use this to find the length of this square.

Area = _____ square meters.

Answers:

Area is 49 square meters. Squares have 4 congruent sides. So, length and width are each 7 meters. $7 \times 7 = 49$



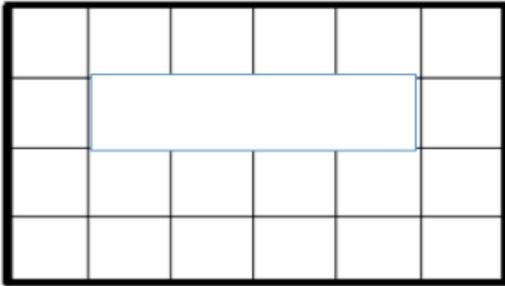
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Now Try These:

For 1 – 6, Equation Editor

Find the area of the rectangle using the square units to help determine the length and width.

1. Write in length and width.

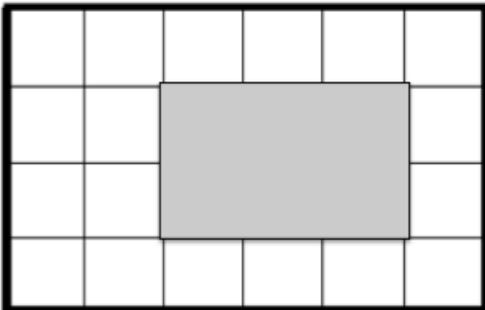


key: $\square = 1$ square unit

2. What is the area for figure 1?

_____ square units.

3. Write in the length and width.

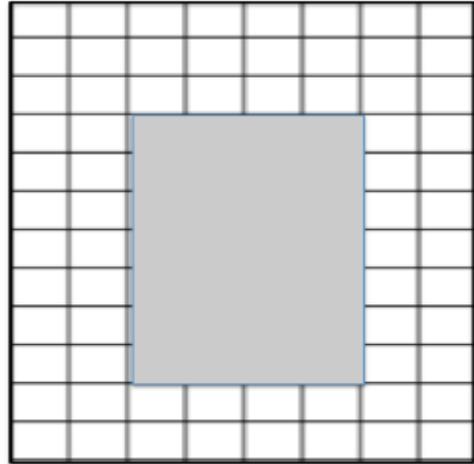


key: $\square = 1$ square yard

4. What is the area for figure 3?

_____ square yards.

5. Write in length and width.

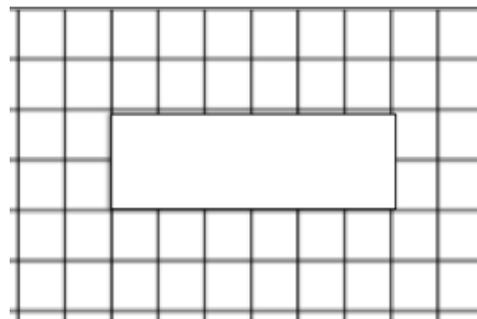


key: $\square = 1$ square centimeter

6. What is the area for figure 5?

_____ square centimeters.

7. Write in the length and width.



key: $\square = 1$ square meter

8. What is the area for figure 7?

_____ square meters.

