

April 8, 2019, Monday - welcome back!

**Item 8**  
Constructed-Response  
Study the triangle.

Remember to copy the problem and show your work to arrive at the correct answer!

Pyth Th  
 $a^2 + b^2 = c^2$   
 $3^2 + ?^2 = 5^2$   
 $9 + ?^2 = 25$   
 $?^2 = 16$   
 $? = 4$

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

What is  $\sin x$ ? Explain how you determined your answer. Write your answer in the space provided.

$\sin x = \frac{4}{5}$  (2pt)

I used Pythagorean Theorem to find the missing side, 4.

Points Awarded	2
	1
	0

**Unit 6 Probability 3C**

Name: \_\_\_\_\_

The table shows the number of endangered and threatened animals in the United States as of 11/30/1998.

Endangered	Mammals	Birds	Reptiles	Amphibians	Other	355
Threatened	8	98	35	16	267	495

- Find the probability that a randomly selected animal is an endangered mammal.  
 $\frac{8}{495} = .016$
- Find the probability that a randomly selected animal is threatened but not a mammal, bird, reptile, or amphibian.  
 $\frac{267}{495} = .539$
- Find the probability that a randomly selected animal is endangered or threatened bird.  
 $\frac{75+15}{495} = .17$
- Find the probability that a randomly selected animal is a reptile or a bird.  
 $\frac{14+21+75+15}{495} = .26$

On April 13, 1912, the Titanic struck an iceberg and rapidly sank with only 710 of her 2,204 passengers and crew surviving. Data on survival of passengers are summarized in the table below.

	Survived	Did not Survive	Total
First class passengers	201	123	324
Second class passengers	118	146	264
Third class passengers	178	378	556
Total passengers	500	817	1317

- Complete the missing numbers in the frequency table above.
- If one passenger is randomly selected, what is the probability that he/she was in third class?  
 $\frac{556}{1317} = .423$
- If one passenger is randomly selected, what is the probability that this passenger was in second class and did not survive?  
 $\frac{146}{1317} = .111$
- What is the probability that a randomly selected passenger survived with the condition that he/she was not in first class?  
 $\frac{118+181}{1317} = .24$

GSE GEOMETRY 3 | Page

A survey by the local newspaper in your community sampled 2200 students in your school about the use of drugs. It stated that through the anonymous survey, 314 of the students indicated that they had experimented with or currently use drugs. The school board is considering requiring a drug test for all students, so you decide to do some research. The drug testing company's website states that its tests are accurate 98% of the time. After the school-wide test, 318 tested accurately of those who said they take drugs. And of the kids that do not take drugs, 1,838 of them test accurately.

9. Complete the table at right.

	Taken Drugs	Does Not Take Drugs	
Tested Accurately	318	1838	2156
Tested Inaccurately	324	38	44
	642	1876	2200

10. If all of the students are required to take the drug test, how many students' tests will not be accurate?  
 $\frac{44}{2200} = 2\%$

11. How many students who do not take drugs will take a test that wrongly shows that they do take drugs?  
 $1876 \times .02 = 38$

In a class of 32 students, 16 play video games and 28 Snapchat. It turns out that 15 students play video games and Snapchat. A student in this class is to be selected at random.

12. Complete the Venn diagram for this situation.

13. What is the probability of selecting a student who plays video games but does not Snapchat?  
 $\frac{1}{32} = 3.1\%$

14. What is the probability of selecting a student who does not play video games or Snapchat?  
 $\frac{3}{32} = 9.4\%$

GSE GEOMETRY 2 | Page

April 9, 2019, Tuesday

**Item 11**  
Selected-Response

Points A, B, C, D, and E are located on circle O, as shown in this figure.

The measure of  $\angle COD$  is  $80^\circ$ . What is the value of  $x$ ?

**Basic Definitions Summarized**

- S (Sample Space) → Consists of all possible outcomes
- Sample point → Each outcome
- Event → Set of some or all outcomes
- U = "union"  $\cap$  = "intersection"
- $A \cup B$  is "either A or B or both"
- $A \cap B$  is "both A and B"
- $A \setminus B$  is "not A"
- $A - B$  is "A but not B"
- $A \subset B$  is "A is a subset of B"
- $B \supset A$  is "A is contained in B"

Please skip 1 problem from each page!!!

Item 11

Unit 1: Transformations in the Coordinate Plane

**REVIEW EXAMPLES**

1. Draw the image of each figure, using the given transformation.

a. Use the translation  $(x, y) \rightarrow (x - 3, y + 1)$ .

b. Reflect across the x-axis.

c. Reflect across the line  $y = x$ .

d. Reflect across the line  $y = -x$ .

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Transformations in the Coordinate Plane

1. a. Identify the vertex and a point on each side of the angle. Translate each point 3 units left and 1 unit up. The image of given  $\triangle HJK$  is  $\triangle H'J'K'$ .

b. Identify the vertices. The reflection image of each point  $(x, y)$  across the x-axis is  $(x, -y)$ . The image of given polygon PQRS is P'Q'R'S', where P and P' are the same.

c. Identify the vertices. The reflection image of each point  $(x, y)$  across the line  $y = x$  is  $(y, x)$ .

d. Identify the vertices. The reflection image of each point  $(x, y)$  across the line  $y = -x$  is  $(-y, -x)$ .

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April 10, 2019, Wednesday Handout

Overview of the Geometry EOC Assessment

**Example Item 3**  
 Extended Constructed Response  
**DOK Level 3:** This is a DOK Level 3 item because it requires complex reasoning.

**Geometry Content Domain:** Equations and Measurement  
**Standard:** NC.9-12.G.GPE.4. Use coordinates to prove simple geometric theorems algebraically.

**ABCD is a parallelogram.** Prove that the **diagonals of ABCD bisect each other** and justify each step. Write your answer in the space provided.

S:  $AB = DC$ ,  $AD = BC$

A:  $\angle ABE \cong \angle CDE \Rightarrow$  Alternate Interior  $\angle$ s

A:  $\angle BAE \cong \angle DCE \Rightarrow$  Alternate Interior  $\angle$ s

$\triangle ABE \cong \triangle CDE$  by ASA

$AE = CE$  &  $DE = BE$   
CPCTC

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Overview of the Geometry EOC Assessment

Points Awarded	Exemplar Response
4	Line segments AB and DC are parallel, making angle ABE congruent to angle CDE and angle BAE congruent to angle DCE because they are alternate interior angles. AND Sides AB and DC are congruent because opposite sides of parallelograms are congruent. That means that triangle ABE and triangle CDE are congruent by angle-side-angle. AND Line segment AE is equal to CE and BE is equal to DE because Corresponding Parts of Congruent Triangles are Congruent (CPCTC). AND By definition, AC and BD bisect each other. Or other valid explanation.
3	The student correctly answers three of the four parts.
2	The student correctly answers two of the four parts.
1	The student correctly answers one of the four parts.
0	Response is irrelevant, inappropriate, or not provided.

Note: If a student makes an error in one part that is carried through to subsequent parts, then the student is not penalized again for the same error.

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More time with a group on Unit 6 test...

SAMPLE ITEMS April 11, 2019, Thursday

1. In the triangles shown,  $\triangle ABC$  is dilated by a factor of  $\frac{2}{3}$  to form  $\triangle XYZ$ .

Given that  $m\angle A = 50^\circ$  and  $m\angle B = 100^\circ$ , what is  $m\angle Z$ ?

A.  $15^\circ$   
 B.  $25^\circ$   
 C.  $30^\circ$   
 D.  $50^\circ$  ←

Answers to Unit 2: 1. C 2. B

2. In the triangle shown,  $\overline{GH} \parallel \overline{DF}$ .

What is the length of  $\overline{GH}$ ?

A. 2.0  
 B. 4.5  
 C. 7.5  
 D. 8.0

**Chord:** \_\_\_\_\_

**Secant:** \_\_\_\_\_

**Tangent:** \_\_\_\_\_

**Radius:** \_\_\_\_\_

**Diameter:** \_\_\_\_\_

MN is a diameter of Circle O.  
 $\angle PON$  is a central angle.

PN is a Minor Arc.

FMN is a Major Arc.

MPN is a Semicircle.

**Tangents**

**Theorem:** Tangents which meet at the same point are equal in length.

**Also:** The angle between a tangent and a radius is  $90^\circ$ .

**Solve for x. Assume that lines which appear to be tangent are tangent.**

1) 
$$\begin{aligned} x+13 &= 2x+5 \\ -2x &= -8 \\ x+13 &= 5 \\ -13 &= -13 \\ x &= -8 \end{aligned}$$

2) 
$$\begin{aligned} x+5 &= 3x-1 \\ -3x &= -7x \\ -2x+5 &= -1 \\ -2x &= -6 \\ x &= 3 \end{aligned}$$

Find the segment length indicated. Assume that lines which appear to be tangent are tangent.

By Th. 
$$\begin{aligned} a^2 + b^2 &= c^2 \\ x^2 + 7.5^2 &= 17^2 \\ x^2 + 56.25 &= 289 \\ x^2 &= 232.75 \\ x &= 15.26 \end{aligned}$$

4) 
$$\begin{aligned} a^2 + b^2 &= c^2 \\ 7.5^2 + h^2 &= 17^2 \\ 56.25 + h^2 &= 289 \\ h^2 &= 232.75 \\ h &= 15.26 \end{aligned}$$

**Arcs & Central Angles**

central angle measure = the arc measure  
 $m\angle AOB = m\widehat{AB}$

$360^\circ = \text{around a } \odot$

Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

1)  $? = 35^\circ$

2)  $= 150$

3)  $m\angle PQS$   $360 - 47 - 103 - 55 - 60 = 95$   
 $m\angle VQS = 47 + 95 = 142$   
 $m\angle VQS = 142$

4)  $m\angle JLN$   $360 - 115 - 40 - 49 - 100 = 100$   
 $m\angle JLN = 40 + 49 + 60 + 100 = 249$

Solve for  $x$ . Assume that lines which appear to be diameters are actual diameters.

5)  $60 + 6x + 15 + 45 = 360$   
 $100 + 60 = 360$   
 $60x + 300 = 360$   
 $-300 -300$   
 $60x = 60$   
 $\frac{60x}{60} = \frac{60}{60}$   
 $x = 1$

6)  $x + 61 + 55 + x + 66 = 360$   
 $2x + 182 = 180$   
 $-182 -182$   
 $2x = -2$   
 $\frac{2x}{2} = \frac{-2}{2}$   
 $x = -1$

7)  $m\angle CRP$   $40 + 100 + 100 + 100 = 340$   
 $360 - 340 = 20$   
 $m\angle CRP = 20$

Tangents & Central Angles WS

Solve for  $x$ . Assume that lines which appear to be tangent are tangent.

1)  $3x-1 = 4+x$   
 $2x = 5$   
 $x = 2.5$

2)  $x+42 = 2x+42$   
 $-x = 0$   
 $x = 0$

3)  $6x+2 = 11x-1$   
 $3 = 5x$   
 $x = 0.6$

4)  $45x+1 = 87x-1$   
 $2 = 42x$   
 $x = 0.0476$

5)  $25x-4 = 3x-2$   
 $22x = 2$   
 $x = 0.0909$

6)  $2x = 3x-4$   
 $4 = x$

7)  $4x+5 = 3x+16$   
 $x = 11$

8)  $24x = 23x+2$   
 $x = 2$

Find the segment length indicated. Assume that lines which appear to be tangent are tangent.

9)  $10.5 = 14.2$

10)  $10.5 = 10.5$

11)  $11 = 7$

12)  $12 = 6.4$

13)  $12 = 16$

14)  $7.2 = 18.8$

15)  $9 = 13.4$

16)  $9 = 9$

Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

17)  $50 + 100 = 150$

18)  $90 + 110 = 200$

19)  $140 + 50 = 190$

20)  $70 + 70 = 140$

21)  $m\angle RPS$   $120 + 120 = 240$

22)  $m\angle DAF$   $30 + 160 = 190$

23)  $m\angle STU$   $40 + 60 = 100$

24)  $m\angle GHI$   $80 + 110 = 190$

Solve for  $x$ . Assume that lines which appear to be diameters are actual diameters.

25)  $20x+5 = 27x-1$   
 $6 = 7x$   
 $x = 0.857$

26)  $40 = 14x-1$   
 $41 = 14x$   
 $x = 2.928$

27)  $23x+5 = 40$   
 $35 = 23x$   
 $x = 1.521$

28)  $120 = 44+x$   
 $76 = x$

Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

29)  $m\angle ECF$   $7x+1 + 18x+4 = 360$   
 $25x+5 = 360$   
 $355 = 25x$   
 $x = 14.2$

30)  $m\angle DEF$   $3+17x + 25x+7 = 360$   
 $10 + 42x = 360$   
 $350 = 42x$   
 $x = 8.333$

31)  $m\angle HJG$   $6x+33 + 75x+4 = 360$   
 $81x+37 = 360$   
 $323 = 81x$   
 $x = 3.987$

32)  $m\angle TRU$   $8x+6 + 110 = 360$   
 $116 = 8x$   
 $x = 14.5$

April 12, 2019, Friday

Item 1  
 Selected Response  
 Look at the triangle.

Which triangle is similar to the given triangle?

A.

B.

C.

D.

Geometry \_\_\_\_\_ Name \_\_\_\_\_

**Inscribed Angles:** An inscribed angle is an angle with its vertex "on" the circle, formed by two intersecting chords.

Inscribed Angle =  $\frac{1}{2}$ (Intercepted Arc)  
 $m\angle B C = \frac{1}{2} m\widehat{A C}$

**Tangent Chord Angle:** An angle formed by an intersecting tangent and chord has its vertex "on" the circle.

Tangent Chord Angle =  $\frac{1}{2}$ (Intercepted Arc)

$m\angle 1 = \frac{1}{2} m\widehat{A C}$   
 $m\angle 2 = \frac{1}{2} m\widehat{A C}$

Geometry \_\_\_\_\_ Name \_\_\_\_\_

**Angle Formed Inside of a Circle by Two Intersecting Chords:**  
 When two chords intersect "inside" a circle, four angles are formed. At the point of intersection, two sets of vertical angles are formed. Remember: vertical angles are equal.

Angle Formed INSIDE by 2 Chords =  $\frac{1}{2}$ (Sum of Intercepted Arcs)

$m\angle 1 = \frac{1}{2} (m\widehat{A D} + m\widehat{B C})$   
 $m\angle 2 = \frac{1}{2} (m\widehat{B C} + m\widehat{A D})$

**Angle Formed Outside of a Circle by the Intersection of:**  
 "Two Tangents" or "Two Secants" or "a Tangent and a Secant".

Angle Formed Outside =  $\frac{1}{2}$ (Difference of Intercepted Arcs)  
 \*\*ALWAYS start with Larger Arc\*\*

**TYPE I:** 2 Secants  $m\angle = \frac{1}{2} (m\widehat{A C} - m\widehat{B D})$   
**TYPE II:** 2 Tangents  $m\angle = \frac{1}{2} (m\widehat{A C} - m\widehat{B D})$   
**TYPE III:** 1 Tangent & 1 Secant  $m\angle = \frac{1}{2} (m\widehat{A C} - m\widehat{B D})$

Geometry - Day 2, 10/14/2016 \_\_\_\_\_ Name \_\_\_\_\_

**Chords, Tangents, & Secants HW**

Find the length of the segment indicated. Round your answer to the nearest tenth if necessary.

1)

2)

3)

4)

Find the measure of the arc or angle indicated.

5)

6)

7) Find  $m\angle BAC$

8) Find  $m\widehat{ME}$

Find the measure of the arc or angle indicated. Assume that lines which appear tangent are tangent.

9) Find  $m\angle BAC$

10) Find  $m\angle STR$

11) Find  $m\widehat{DE}$

12) Find  $m\widehat{CS}$

13) Find  $m\angle KLM$

14) Find  $m\angle EFG$

15) Find  $m\angle TUV$

16) Find  $m\angle TSR$

17) Find  $m\angle PQR$

18) Find  $m\angle ABC$

19) Find  $m\widehat{KE}$

20) Find  $m\widehat{KNE}$

21) Find  $m\angle VTF$

22) Find  $m\angle WUP$

23) Find  $m\widehat{BE}$

24) Find  $m\angle WLM$

25) Find  $m\widehat{VF}$

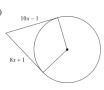
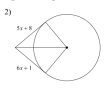
26) Find  $m\angle RSU$

27) Find  $m\widehat{VTF}$

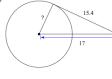
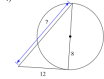
28)  $m\widehat{VFK} = 22x + 11$   
 Find  $m\widehat{VFK}$

Geometry - U4 Day 2, 3/23/2017  
 TOTD - Tangents, Central Angles, & Arcs



Solve for  $x$ . Assume that lines which appear to be tangent are tangent.

1)  2) 



Find the segment length indicated. Assume that lines which appear to be tangent are tangent.

3)  4) 



Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

5)  $m\angle BEG$   6)  $m\angle EN$  

Solve for  $x$ . Assume that lines which appear to be diameters are actual diameters.

7)  8) 



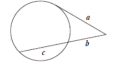
Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

9)  $m\angle BEJ$   10)  $m\angle F$  

April 12, 2019, Friday

Day 3 Segment Lengths.notebook March 26, 2019

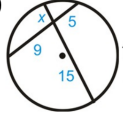
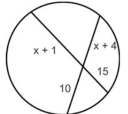
**SEGMENT LENGTHS: INTERSECTING CHORDS, SECANTS, & TANGENTS**

<p>Intersecting chords (or secants) on the interior of a circle.</p>  <p><math>a \cdot b = c \cdot d</math></p>	<p>Two secants intersecting on the exterior of a circle.</p>  <p><math>a(a+b) = c(c+d)</math></p>	<p>A secant and a tangent intersecting on the exterior of a circle.</p>  <p><math>a^2 = b(b+c)</math></p>
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1

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
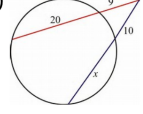
**Intersecting Chords**

1)  2) 

2

3 Segment Lengths.notebook March 26, 2019

**Intersecting 2 Secants (on Exterior)**

1)  2) 

3

Day 3 Segment Lengths.notebook March 26, 2019

### Intersecting Secant & Tangent (on Exterior)

1)

2)

4

Geometry - Day 3, 3/27/2017 Segment Lengths HW Name \_\_\_\_\_

Find the value of  $x$ .

1.

Find AB and DE.

4.

Find the value of  $x$ .

7.

Find RT and TV.

10.  $\frac{8}{x-3} = \frac{6.8}{x}$

Find the value of  $x$ .

13.

Find PQ.

16.

Find the value of  $x$ .

19.  $\frac{x}{5} = \frac{24}{2x+1}$

2.

5.

8.

11.

14.

17.

20.

3.

6.

9.

12.

15.

18.

21.  $\frac{x}{5} = \frac{24}{2x+1}$