

Tennessee Comprehensive Assessment Program

TCAP

TNReady—Math EOC Item Release
Algebra I, II
Geometry





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TNReady—Math EOC Item Release Algebra I





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Table of Contents

Metadata Interpretation Guide – Math	4
SAMPLE METADATA TABLE	4
METADATA DEFINITIONS.....	5
Algebra I	6

Metadata Interpretation Guide – Math

SAMPLE METADATA TABLE

Label	TN0045532	Max Points	1
Item Grade	8	Rationale1	
Item Content	Math	Rationale2	
Item Type	Choice	Rationale3	
Key	3	Rationale4	
DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	No	Sample Answer	
Ruler	None		
Standard 1 Code	8.NS.A.2	Standard 1	
Standard 2 Code	8.NS.A.2	Standard 2	

METADATA DEFINITIONS

Label: Unique letter/number code used to identify the item.	Max Points: Maximum score points possible for this item.
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Key: Correct answer. 1=A, 2=B, etc. This may be blank for constructed response items where students write or type their responses.	Rationale4 (if listed): Reason why this answer choice is correct or incorrect.
DOK (if listed): Depth of Knowledge (cognitive complexity) is measured on a four-point scale. 1=recall; 2=skill/concept; 3=strategic thinking; 4=extended thinking.	Rationale5 (if listed): Reason why this answer choice is correct or incorrect.
Difficulty (if listed): Level of difficulty.	Rationale6 (if listed): Reason why this answer choice is correct or incorrect.
Calculator (if listed): Yes for items that permit calculator use.	Protractor (if listed): Yes for items that permit protractor use.
Ruler (if listed): Yes for items that permit a ruler.	Sample Answer (if listed): An example of an answer a student could provide.
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Standard 2 Code (if listed): Content standard assessed. This is the primary code used for the Integrated Math courses.	Standard 2 (if listed): Text of the content standard assessed.

TN214374

Label	TN214374	Max Points	1
Item Grade	09	Rationale1	Confused addition and subtraction in the solution process.
Item Content	Algebra I	Rationale2	Confused the missing step with an operation that must be undone.
Item Type	choice	Rationale3	Confused the missing step with a later step in the process that is shown.
Key	4	Rationale4	Correct. The student correctly identifies that the missing step involves subtracting 60 from both sides.
DOK	2	Rationale5	
Difficulty	L	Rationale6	
Calculator	No	Sample Answer	
Ruler	None		
Standard 1 Code	A1.A.REI.A.1	Standard 1 Text	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

Tanika booked a banquet hall for a party. The hall charged \$15 per person, with a required tip of \$60 for the waiters. Tanika knows that the total bill was \$315 without tax, but she lost track of how many people attended. She writes and solves an equation, where p represents the number of people who attended.

Step 1: $315 = 15p + 60$

Step 2: ?

Step 3: $255 = 15p$

Step 4: $\frac{255}{15} = \frac{15p}{15}$

Step 5: $p = 17$

Which operation describes Tanika's missing work in Step 2?

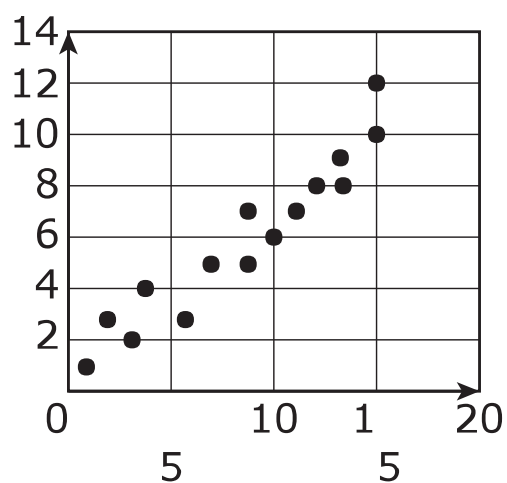
- A.** added 60 to both sides
- B.** multiplied both sides by 15
- C.** divided both sides by 15
- D.** subtracted 60 from both sides

TN048129

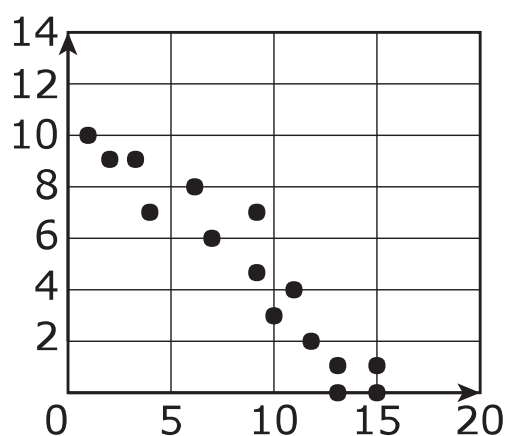
Label	TN048129	Max Points	1
Item Grade	09	Rationale1	Scatter plot A shows a strong positive linear relationship. Scatter plot B shows a strong negative linear relationship. Scatter plot C shows a nonlinear relationship.
Item Content	Algebra I	Rationale2	
Item Type	match	Rationale3	
Key	C1,A2,B3	Rationale4	
DOK	1	Rationale5	
Difficulty	L	Rationale6	
Calculator	No	Sample Answer	
Ruler	None		
Standard 1 Code	A1.S.ID.C.6	Standard 1 Text	Compute (using technology) and interpret the correlation coefficient of a linear fit.

The three scatter plots show relationships between two variables.

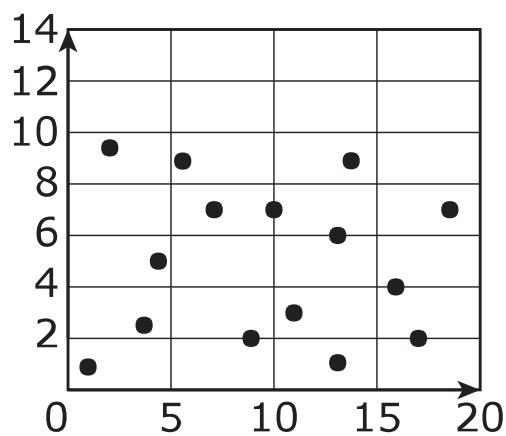
Scatter plot A:



Scatter plot B:



Scatter plot C:



The table shows columns marked with three linear correlation coefficients.

Mark the box showing which scatter plot **most closely** matches that linear correlation coefficient.

	-0.9	0	0.9
Scatter plot A			
Scatter plot B			
Scatter plot C			

TN0033076

Label	TN0033076	Max Points	1
Item Grade	HS	Rationale1	
Item Content	Algebra I	Rationale2	
Item Type	choice	Rationale3	
Key	2	Rationale4	
DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator		Sample Answer	
Ruler			
Standard 1 Code	A1.A.APR.A.1	Standard 1 Text	

Select the expression equivalent to $(-4x + 3) - (-2x + 5)$.

- A.** $-2x$
- B.** $-2x - 2$
- C.** $-6x - 2$
- D.** $-6x + 8$

TN739766

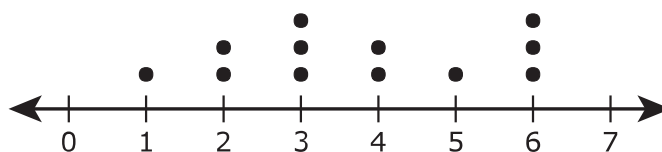
Label	TN739766	Max Points	1
Item Grade	HS	Rationale1	
Item Content	Math	Rationale2	
Item Type	textEntry	Rationale3	
Key	$6x^2 + 8x - 1, 6x^2 + 8x + - 1, 8x + 6x^2 + - 1, 8x + 6x^2 - 1, - 1 + 8x + 6x^2$	Rationale4	
DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	Yes	Sample Answer	
Ruler	None		
Standard 1 Code	A1.A.APR.A.1	Standard 1 Text	

Enter an expression equivalent to $(8x^2 - 4x + 3) - (2x^2 - 5x) + (7x - 4)$ using the fewest possible number of terms.

TN148359

Label	TN148359	Max Points	1
Item Grade	HS	Rationale1	
Item Content	Math	Rationale2	
Item Type	choice	Rationale3	
Key	1	Rationale4	
DOK	2	Rationale5	
Difficulty	L	Rationale6	
Calculator	Yes	Sample Answer	
Ruler	None		
Standard 1 Code	A1.S.ID.A.1	Standard 1 Text	

The dot plot shows the number of attempts to pass the first level of a video game by a sample of people.



Which set of data is represented by the dot plot?

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

TN040092

Label	TN040092	Max Points	1
Item Grade	HS	Rationale1	
Item Content	Math	Rationale2	
Item Type	textEntry	Rationale3	
Key	66,sixty six,F=66,84- 18=66,sixty-six	Rationale4	
DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	Yes	Sample Answer	
Ruler	None		
Standard 1 Code	A1.A.CED.A.1	Standard 1 Text	

Juan and Franco collect baseball cards. Juan has J baseball cards. Franco has 18 fewer baseball cards than Juan. Together they have 150 baseball cards.

How many baseball cards does Franco have?

TN148119

Label	TN148119	Max Points	1
Item Grade	09	Rationale1	If a person watches 0 hours of TV, then $0.1x = 0$. $3.5 - 0 = 3.5$, so the person is expected to exercise 3.5 hours.
Item Content	Algebra I	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	3.5 hours, 3.5 hrs, $y=3.5$ hours, $y=3.5$ hrs, $y=3.5$, 3.5 hr, 3.5 ours, 3.5	Rationale4	N/A
DOK	1	Rationale5	N/A
Difficulty	L	Rationale6	N/A
Calculator	No	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A1.S.ID.C.5	Standard 1 Text	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

A survey asks participants how many hours per week they watch TV and how many hours per week they exercise. The equation $y = 3.5 - 0.1x$ models the survey results, where y is the number of hours a person exercises and x is the number of hours a person watches TV.

If a person watches 0 hours of TV, how many hours is the person expected to exercise?

Enter your answer in the space provided.

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Table of Contents

Metadata Interpretation Guide – Math	4
SAMPLE METADATA TABLE	4
METADATA DEFINITIONS.....	5
Algebra II.....	6

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DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	No	Sample Answer	
Ruler	None		
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TN341464

Label	TN341464	Max Points	1
Item Grade	HS	Rationale1	
Item Content	Math	Rationale2	
Item Type	choice	Rationale3	
Key	1	Rationale4	
DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	Yes	Sample Answer	
Ruler	None		
Standard 1 Code	A2.F.BF.A.1a	Standard 1 Text	

The value of a motorcycle each year follows the sequence \$12,000, \$9,600, \$7,680, \$6,144, ...

Which formula represents the recursive definition of the sequence where n represents the number of years?

A. $a_n = a_{n-1}(0.8)$

B. $a_n = a_{n-1} - 2,400$

C. $a_n = a_{n+1}(0.8)$

D. $a_n = a_{n-1}\left(\frac{5}{4}\right)$

TN248122

Label	TN248122	Max Points	1
Item Grade	10	Rationale1	Evaluates the square root of the right side $\sqrt{(x-4)} = 9 \rightarrow \sqrt{(x-4)} = \sqrt{9} \rightarrow x-4 = 3 \rightarrow x=7$
Item Content	Algebra II	Rationale2	Ignores square root symbol $\sqrt{(x-4)} = 9 \rightarrow x-4 = 9 \rightarrow x = 13$
Item Type	choice	Rationale3	Correct. $\sqrt{(x-4)} = 9 \rightarrow (\sqrt{(x-4)})^2 = 9^2 \rightarrow x-4 = 81 \rightarrow x = 85$
Key	3	Rationale4	Adds four to each side disregarding the root before squaring $\sqrt{(x-4)} = 9 \rightarrow \sqrt{x} = 13 \rightarrow (\sqrt{x}) = 13 \rightarrow x = 169$
DOK	1	Rationale5	
Difficulty	L	Rationale6	
Calculator	No	Sample Answer	
Ruler	None		
Standard 1 Code	A2.A.REI.A.2	Standard 1 Text	

What is the value of x in the following equation?

$$\sqrt{x-4} = 9$$

- A.** $x = 7$
- B.** $x = 10$
- C.** $x = 85$
- D.** $x = 169$

TN516769

Label	TN516769	Max Points	1
Item Grade	10	Rationale1	Correct
Item Content	Algebra II	Rationale2	Reverses the role of numerator and denominator in the rational exponent.
Item Type	choice	Rationale3	Does not understand that the expression represents a unique value.
Key	1	Rationale4	Does not understand how to evaluate expressions with rational exponents.
DOK	2	Rationale5	
Difficulty	L	Rationale6	
Calculator	No	Sample Answer	
Ruler	None		
Standard 1 Code	A2.N.RN.A.2	Standard 1 Text	

Lillie and Adam are simplifying the expression $64^{\frac{2}{3}}$.

Lillie takes the cube root of 64 and squares the result, saying

$$64^{\frac{2}{3}} = 16.$$

Adam takes the square root of 64 and cubes the result, saying

$$64^{\frac{2}{3}} = 512.$$

Whose reasoning is correct?

- A.** Only Lillie is correct.
- B.** Only Adam is correct.
- C.** Both Lillie and Adam are correct.
- D.** Neither Lillie nor Adam is correct.

TN241436

Label	TN241436	Max Points	1
Item Grade	HS	Rationale1	
Item Content	Math	Rationale2	
Item Type	choice	Rationale3	
Key	4	Rationale4	
DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	Yes	Sample Answer	
Ruler	None		
Standard 1 Code	A2.A.CED.A.1	Standard 1 Text	

Joyce deposited \$5000 in an account with an annual interest rate of 6% , compounded annually. How much money will be in the account 10 years later?

- A.** \$3954.24
- B.** \$5600.00
- C.** \$8000.00
- D.** \$8954.24

TN045944

Label	TN045944	Max Points	1
Item Grade	10	Rationale1	$35/140 = 0.25$. This is the probability of selecting a male who believes he will become rich from the entire population.
Item Content	Algebra II	Rationale2	35 males said they believe they will become rich, but that does not mean that 35% of males believe they will become rich.
Item Type	choice	Rationale3	Correct. $35/80 = 0.44$
Key	3	Rationale4	$35/54 = 0.65$. This is probability of selecting a male from the people who believe they will become rich.
DOK	2	Rationale5	
Difficulty	H	Rationale6	
Calculator	Yes	Sample Answer	
Ruler	None		
Standard 1 Code	A2.S.CP.B.5	Standard 1 Text	

A group of people were surveyed and asked whether they think they will become famous someday. The results are summarized in the table.

	Will become famous	Won't become famous	Total
Female	19	41	60
Male	35	45	80
Total	54	86	140

If a male from the survey is randomly selected, what is the probability he believes he will become famous?

- A.** 25%
- B.** 35%
- C.** 44%
- D.** 65%

TN641432

Label	TN641432	Max Points	1
Item Grade	HS	Rationale1	
Item Content	Math	Rationale2	
Item Type	choice	Rationale3	
Key	3	Rationale4	
DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	Yes	Sample Answer	
Ruler	None		
Standard 1 Code	A2.F.LE.A.2	Standard 1 Text	

The population, P , of Johnstown over a period of t years since the town was founded can be estimated by $P = 5,600e^{0.059t}$.

In approximately how many years after the town's founding will the population reach 11,200?

- A.** 34
- B.** 17
- C.** 12
- D.** 5

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TNReady—Math EOC Item Release Geometry





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DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	No	Sample Answer	
Ruler	None		
Standard 1 Code	8.NS.A.2	Standard 1	
Standard 2 Code	8.NS.A.2	Standard 2	

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TN341819

Label	TN341819	Max Points	1
Item Grade	HS	Rationale1	
Item Content	Math	Rationale2	
Item Type	textEntry	Rationale3	
Key	$3/5, 0.6, \sin A, \cos B =$ $\sin A, \cos B =$ $3/5, 0.60, \cos B =$ $0.60, \cos B =$ $0.6, .60, \cos B =$ $.60, \cos B = .6, .6$	Rationale4	
DOK	1	Rationale5	
Difficulty	L	Rationale6	
Calculator	No	Sample Answer	
Ruler	None		
Standard 1 Code	G.SRT.C.7	Standard 1 Text	

The sum of the measures of angle A and angle B equals 90° ,

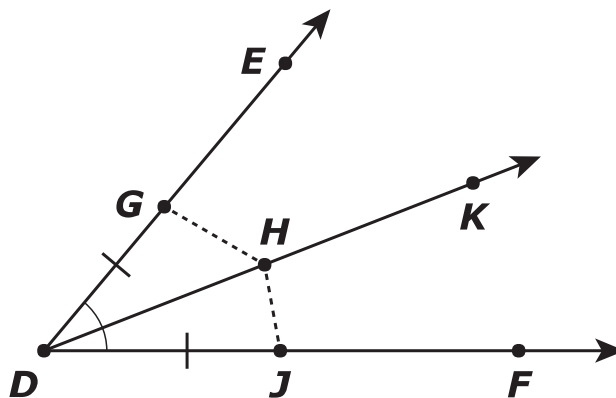
$$\sin A = \frac{3}{5}, \text{ and } \cos A = \frac{4}{5}.$$

What is $\cos B$?

TN941584

Label	TN941584	Max Points	1
Item Grade	HS	Rationale1	
Item Content	Math	Rationale2	
Item Type	choice	Rationale3	
Key	3	Rationale4	
DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	No	Sample Answer	
Ruler	None		
Standard 1 Code	G.CO.C.10	Standard 1 Text	

In the figure shown, Roland is to prove that $\overline{GH} \cong \overline{HJ}$.



Part of his proof is shown in the table.

Statement	Reason
1. $\overline{DG} \cong \overline{DJ}$	1. Given
2. $\overrightarrow{DK}$ bisects $\angle EDF$	2. Given
3. $\angle GDH \cong \angle JDH$	3. Definition of angle bisector
4. $\overline{DH} \cong \overline{DH}$	4. Reflexive property
5. $\triangle DGH \cong \triangle DJH$	5. ?
6. $\overline{GH} \cong \overline{HJ}$	6. Corresponding parts of congruent triangles are congruent

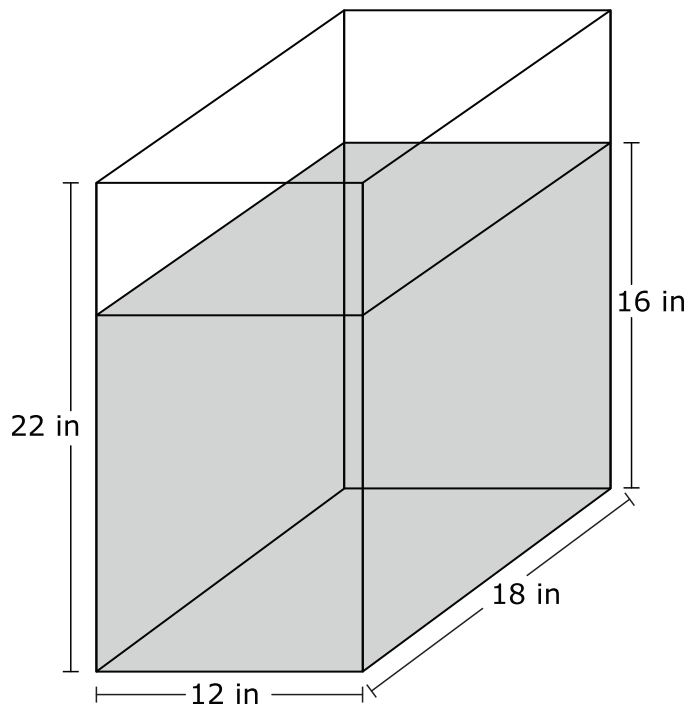
What is the reason for statement 5?

- A. AAS
- B. ASA
- C. SAS
- D. SSS

TN862424

Label	TN862424	Max Points	1
Item Grade	11	Rationale1	The volume of the tea in the container is $12 \times 18 \times 16 = 3,456$ cubic inches. Since there is 1 gallon for every 231 cubic inches, there are $3,456 \div 231 \approx 15$ gallons of tea in the container.
Item Content	Geometry	Rationale2	
Item Type	textEntry	Rationale3	
Key	15,15.0 gallons,15.0 gal,15.0,fifteen,15 gallons,15 gal,14.96103,14.96104,14.9610,14.961,14.96	Rationale4	
DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	Yes	Sample Answer	
Ruler	None		
Standard 1 Code	G.MG.A.2	Standard 1 Text	

Trevor works in a restaurant and makes tea in a rectangular plastic container. The shaded portion of the figure represents the tea in the container.



Trevor uses the formula 1 gallon = 231 cubic inches to help determine the volume of tea in the container.

How many gallons of tea are in the container? Round your answer to the nearest tenth of a gallon.

Enter your answer in the space provided.

TN641571

Label	TN641571	Max Points	1
Item Grade	HS	Rationale1	
Item Content	Math	Rationale2	
Item Type	choice	Rationale3	
Key	1	Rationale4	
DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	Yes	Sample Answer	
Ruler	None		
Standard 1 Code	G.CO.B.6	Standard 1 Text	

Triangle RST with vertices $R(-1, 3)$, $S(4, 2)$, and $T(3, -4)$ is rotated 90° counterclockwise about the origin.

What are the images of the vertices of the triangle?

- A.** $R'(-3, -1)$, $S'(-2, 4)$, and $T'(4, 3)$
- B.** $R'(1, -3)$, $S'(-4, -2)$, and $T'(-3, 4)$
- C.** $R'(3, -1)$, $S'(2, 4)$, and $T'(-4, 3)$
- D.** $R'(-1, -3)$, $S'(4, -2)$, and $T'(3, 4)$

TN342739

Label	TN342739	Max Points	1
Item Grade	HS	Rationale1	
Item Content	Math	Rationale2	
Item Type	textEntry	Rationale3	
Key	$y = -5x + 4, y = 4$ $- 5x, y = 4 + - 5x, y$ $- 4 = -5x, -5x + 4$ $= y, 4 - 5x = y, 4 +$ $- 5x = y, -5x = y -$ $4, -5(x - 0) = y -$ $4, y - 4 = -5(x - 0)$	Rationale4	
DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	Yes	Sample Answer	
Ruler	None		
Standard 1 Code	G.GPE.B.3	Standard 1 Text	

Write an equation for the line that passes through point $(0, 4)$ and is parallel to the line with equation $y = -5x + 3$.

TN942807

Label	TN942807	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	2	Rationale4	N/A
DOK	1	Rationale5	N/A
Difficulty	L	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.GMD.A.2	Standard 1 Text	N/A

The diameter of a softball is 3.82 in. The diameter of a baseball is 2.90 in. What is the ratio of the volume of the softball to the volume of the baseball?

- A.** 3.82 : 2.90
- B.** $3.82^3 : 2.90^3$
- C.** $3.82^{\frac{3}{2}} : 2.90^{\frac{3}{2}}$
- D.** $3.82^{\frac{3}{8}} : 2.90^{\frac{3}{8}}$

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Tennessee Comprehensive
Assessment Program TCAP
TNReady—Math
EOC Item Release
Geometry
Spring 2018



Tennessee Comprehensive Assessment Program

TCAP

TNReady—Math EOC Item Release
Algebra I, II
Geometry
Integrated Math I, II, III





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Table of Contents

Metadata Interpretation Guide – Math 4

SAMPLE METADATA TABLE4
METADATA DEFINITIONS5

Math EOC..... 6

Item Label by Subject

Algebra I	TN788764, TN840137, TN240094, TN840074, TN340145, TN639838
Algebra II	TN439812, TN040009, TN341360, TN241416, TN541442, TN041469, TN141520, TN841594
Geometry	TN141626, TN842677, TN942761, TN741741, TN241868, TN542772, TN841858, TN042732, TN541660, TN641837, TN541709, TN842783, TN941576, TN742663, TN042765
Integrated Math I	TN941689
Integrated Math II	TN545842, TN545866, TN745862
Integrated Math III	TN545892, TN048721, TN342790, TN442698, TN845885

Metadata Interpretation Guide – Math

SAMPLE METADATA TABLE

Label	TN0045532	Max Points	1
Item Grade	8	Rationale1	
Item Content	Math	Rationale2	
Item Type	Choice	Rationale3	
Key	3	Rationale4	
DOK	2	Rationale5	
Difficulty	M	Rationale6	
Calculator	No	Sample Answer	
Ruler	None		
Standard 1 Code	8.NS.A.2	Standard 1	
Standard 2 Code	8.NS.A.2	Standard 2	

METADATA DEFINITIONS

Label: Unique letter/number code used to identify the item.	Max Points: Maximum score points possible for this item.
Item Grade (if listed): Grade level in 3-8 or EOC	Rationale1 (if listed): Reason why this answer choice is correct or incorrect.
Item Content (if listed): Subject being tested. (e.g., ELA, Algebra I, etc.).	Rationale2 (if listed): Reason why this answer choice is correct or incorrect.
Item Type: For example, "Choice" for multiple choice questions, "Match" for matching tables, "Composite" for two-part items.	Rationale3 (if listed): Reason why this answer choice is correct or incorrect.
Key: Correct answer. 1=A, 2=B, etc. This may be blank for constructed response items where students write or type their responses.	Rationale4 (if listed): Reason why this answer choice is correct or incorrect.
DOK (if listed): Depth of Knowledge (cognitive complexity) is measured on a four-point scale. 1=recall; 2=skill/concept; 3=strategic thinking; 4=extended thinking.	Rationale5 (if listed): Reason why this answer choice is correct or incorrect.
Difficulty (if listed): Level of difficulty.	Rationale6 (if listed): Reason why this answer choice is correct or incorrect.
Calculator (if listed): Yes for items that permit calculator use.	Protractor (if listed): Yes for items that permit protractor use.
Ruler (if listed): Yes for items that permit a ruler.	Sample Answer (if listed): An example of an answer a student could provide.
Standard 1 Code (if listed): Content standard assessed.	Standard 1 (if listed): Text of the content standard assessed.
Standard 2 Code (if listed): Content standard assessed. This is the primary code used for the Integrated Math courses.	Standard 2 (if listed): Text of the content standard assessed.

TN788764

Label	TN788764	Max Points	1
Item Grade	09	Rationale1	N/A
Item Content	Algebra I	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	4	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	No	Sample Answer	N/A
Ruler	None		
Standard 1 Code	N.Q.A.1	Standard 1 Text	N/A

Ostriches can run at a sustained speed of 31 miles per hour.

Which expression would convert this speed to feet per second?

A $\left(\frac{31 \text{ miles}}{1 \text{ hour}} \right) \left(\frac{5280 \text{ feet}}{1 \text{ mile}} \right) \left(\frac{1 \text{ hour}}{60 \text{ sec}} \right)$

B $\left(\frac{31 \text{ miles}}{1 \text{ hour}} \right) \left(\frac{1 \text{ hour}}{60 \text{ min}} \right) \left(\frac{1 \text{ mile}}{5280 \text{ feet}} \right)$

C $\left(\frac{31 \text{ miles}}{1 \text{ hour}} \right) \left(\frac{1 \text{ hour}}{60 \text{ min}} \right) \left(\frac{1 \text{ min}}{60 \text{ sec}} \right) \left(\frac{1 \text{ mile}}{5280 \text{ feet}} \right)$

D $\left(\frac{31 \text{ miles}}{1 \text{ hour}} \right) \left(\frac{5280 \text{ feet}}{1 \text{ mile}} \right) \left(\frac{1 \text{ hour}}{60 \text{ min}} \right) \left(\frac{1 \text{ min}}{60 \text{ sec}} \right)$

TN840137

Label	TN840137	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	3	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	F.BF.A.1a	Standard 1 Text	N/A

During the first week that a movie was in theaters, 1 million people saw the movie. Each week going forward, half the number of people saw the movie as did the previous week.

How many people saw the movie in the fifth week?

- ☐ M 500,000
- ☐ P 250,000
- ☐ R 62,500
- ☐ S 31,250

TN240094

Label	TN240094	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	1.25	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.REI.C.6	Standard 1 Text	N/A

Hannah bought 4 hamburgers and 2 orders of french fries at a local restaurant for \$16.50. Philip bought 5 hamburgers and 3 orders of french fries for \$21.25 at the same restaurant.

What is the price, in dollars, of 1 order of french fries?

TN840074

Label	TN840074	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	6	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.REI.B.3	Standard 1 Text	N/A

Consider the inequality $51 \leq bx + 9$.

What value of b will result in the solution $x \geq 7$?

TN340145

Label	TN340145	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	1,4	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	F.LE.A.1b	Standard 1 Text	N/A

Select **all** the tables in which the y -value changes at a constant rate per x -interval.

☐

x	1	2	3	4	5
y	-0.5	0	0.5	1	1.5

☐

x	1	2	3	4	5
y	1	4	9	16	25

☐

x	1	2	3	4	5
y	2	4	8	16	32

☐

x	1	2	3	4	5
y	1	-2	-5	-8	-11

☐

x	1	2	3	4	5
y	1	8	27	64	125

TN639838

Label	TN639838	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	3,5	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	M	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.SSE.B.3c	Standard 1 Text	N/A

Select all expressions equivalent to $16(2)^{n-3}$.

☐ $(2)^{4n-12}$

☐ $(2)^{4n-3}$

☐ $(2)^{n+1}$

☐ $8(2)^{n-1}$

☐ $8(2)^{n-2}$

TN439812

Label	TN439812	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	1,2,5	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	No	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.SSE.A.2	Standard 1 Text	N/A

Select all expressions that are equivalent to $3x^5 - 6x^4y + 3x^3y^2$.

☐ $3x^3(x - y)^2$

☐ $3x^3(x^2 - 2xy + y^2)$

☐ $3x^3(x + y)^2$

☐ $3x^3(x - y)(x + y)$

☐ $3x^3(x - y)(x - y)$

TN040009

Label	TN040009	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	40 - 42i	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	N.CN.A.2	Standard 1 Text	N/A

Write an equivalent form of $(7 - 3i)^2$.

TN341360

Label	TN341360	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	1	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.REI.D.11	Standard 1 Text	N/A

Which system of equations has only **one** solution?

M $y = x + 5$ and $y = -3x + 6$

P $y = x - 2$ and $y = x + 4$

R $y = |x - 5|$ and $y = 0.2x + 1$

S $y = x^2 - 1$ and $y = 1.5x + 1$

TN241416

Label	TN241416	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	1	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	F.IF.A.3	Standard 1 Text	N/A

A recursive sequence is defined as $a_1 = 2$; $a_{n+1} = -3a_n$.

Which sequence follows from this recursive definition of a function?

- ☐ A $2, -6, 18, -54, 162, \dots$
- ☐ B $2, -3, -4, -5, -6, \dots$
- ☐ C $-3, -6, -12, -24, -48, \dots$
- ☐ D $-3, 2, 1, 0, -1, \dots$

TN541442

Label	TN541442	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	1	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.REI.D.11	Standard 1 Text	N/A

Consider the functions shown.

$$f(x) = |x + 2|$$

$$g(x) = x + 8$$

What is the solution to $f(x) = g(x)$?

M $(-5, 3)$

P $(-3, 1)$

R $(-2, -8)$

S $(0, 8)$

TN041469

Label	TN041469	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	2	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.REI.A.2	Standard 1 Text	N/A

What value of x satisfies the equation $\frac{x + 23}{x + 3} = 5$?

TN141520

Label	TN141520	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	1	Rationale4	N/A
DOK	3	Rationale5	N/A
Difficulty	M	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	S.ID.B.6a	Standard 1 Text	N/A

Some values for functions $W(x)$ and $Z(x)$ are shown in the table.

x	$W(x)$	$Z(x)$
0	1.0	9
2	1.9	-3
4	3.6	-7
6	6.8	-3
8	12.9	9

Which statement **best** describes the functions?

- ☐ A $W(x)$ is an exponential function, and $Z(x)$ is a polynomial function.
- ☐ B $W(x)$ is a polynomial function, and $Z(x)$ is an exponential function.
- ☐ C $W(x)$ is a polynomial function, and $Z(x)$ is a logarithmic function.
- ☐ D $W(x)$ is a trigonometric function, and $Z(x)$ is a polynomial function.

TN841594

Label	TN841594	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	524,286	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.SSE.B.4	Standard 1 Text	N/A

Consider the geometric sequence.

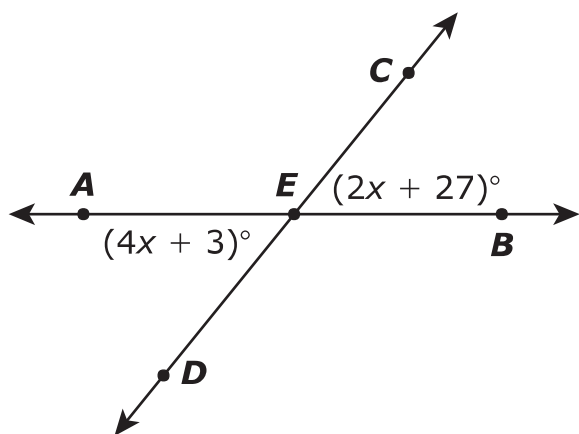
6, 24, 96, 384, ...

What is the sum of the first nine terms?

TN141626

Label	TN141626	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	3	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.CO.C.9	Standard 1 Text	N/A

$\overline{AB}$ and $\overline{CD}$ intersect at point E .



Find $m\angle CEB$.

(M) 12°

(P) 25°

(R) 51°

(S) 77°

TN842677

Label	TN842677	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	$(x+3)^2 + (y-4)^2 = 25$ or any equivalent equation	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	No	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.GPE.A.1	Standard 1 Text	N/A

What is the equation of a circle with a radius of 5 units and a center at $(-3, 4)$?

TN942761

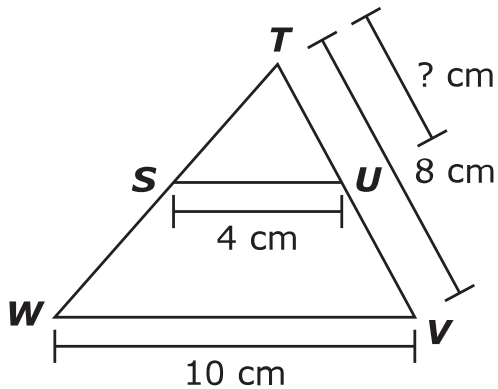
Label	TN942761	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	625	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.MG.A.3	Standard 1 Text	N/A

Miguel buys 100 feet of fence to enclose a rectangular area of his backyard so his dog can run freely. What is the maximum area, in square feet, he can enclose?

TN741741

Label	TN741741	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	3.2	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.SRT.B.5	Standard 1 Text	N/A

In the figure shown, $\overline{WV} \parallel \overline{SU}$.

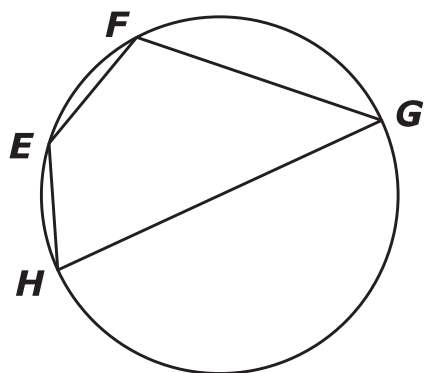


What is the length, in centimeters, of $\overline{TU}$?

TN241868

Label	TN241868	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	2	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.C.A.3	Standard 1 Text	N/A

Quadrilateral $EFGH$ is inscribed in a circle as shown.



$m\angle F = (4x + 10)^\circ$, $m\angle G = (2x - 5)^\circ$, and $m\angle H = (3x - 5)^\circ$. What is the value of x ?

- ☐ A 20
- ☐ B 25
- ☐ C 38
- ☐ D 40

TN542772

Label	TN542772	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	0.001 - 0.002	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.MG.A.2	Standard 1 Text	N/A

The table shows the square footage of various high schools in a city and the number of students who attend that school.

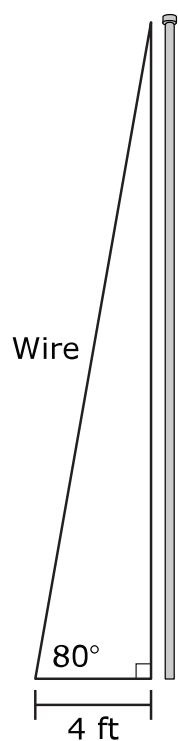
Name of School	Square Footage	Number of Students
Berkely High School	486,000	1,694
Commonwealth High School	400,000	1,872
Garfield High School	310,000	510
Hillview High School	268,000	2,370

What is the population density of the school that has the **lowest** number of students per square foot? Give your answer to three decimal places.

TN841858

Label	TN841858	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	na	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.SRT.C.8	Standard 1 Text	N/A

Janet plans to replace a support wire attached to a light pole, as shown.



To the nearest foot, what is the length of the wire?

TN042732

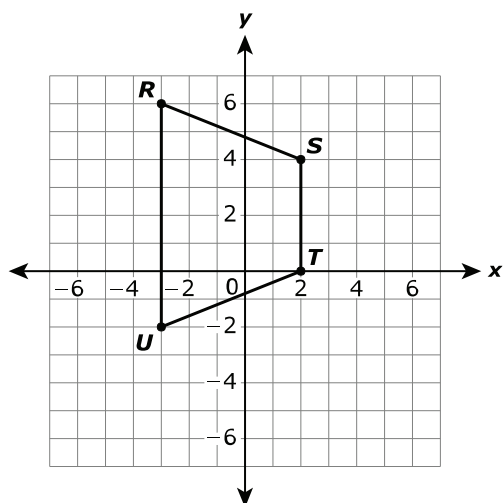
Label	TN042732	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	40	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.GPE.B.7	Standard 1 Text	N/A

What is the perimeter, in grid units, of a regular octagon that has one side with endpoints $(-1, 2)$ and $(3, -1)$?

TN541660

Label	TN541660	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	$y = 2$	Rationale4	N/A
DOK	1	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.CO.A.3	Standard 1 Text	N/A

Trapezoid $RSTU$ is shown.



Write the equation for the line that would map the trapezoid onto itself.

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 $\sqrt[n]{\square}$
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log
ln

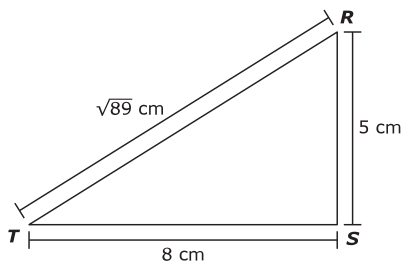
Σ

↕

TN641837

Label	TN641837	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	5/8 or 7.5/12 or any equivalent fraction	Rationale4	N/A
DOK	1	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.SRT.C.8	Standard 1 Text	N/A

Triangle RST is shown.



$\triangle JKL \sim \triangle RST$ with a scale factor of 1.5.

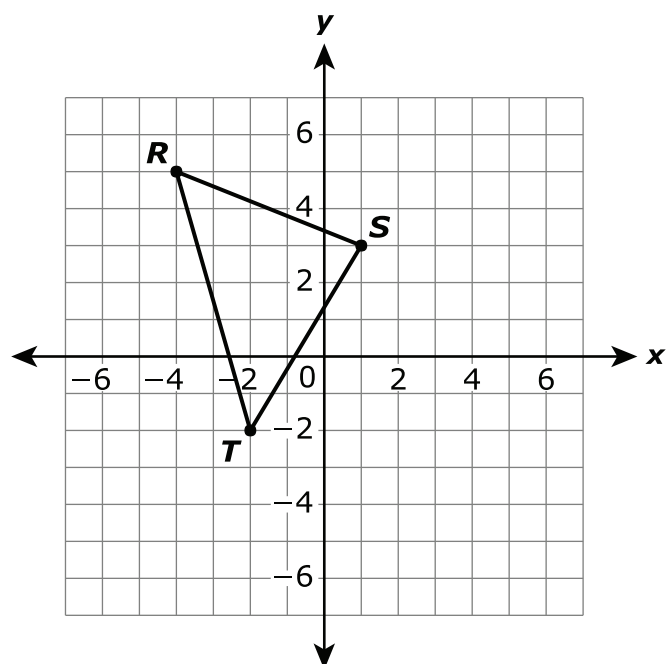
What is $\tan(L)$?

$\pm$	$+$	$-$	$\times$	$\div$	$=$	$<$	$\leq$	$>$	$\geq$	π	$\circ$	$^{\circ}$	$''$	$\frac{\square}{\square}$	$\frac{\square\square}{\square\square}$	$\frac{\square\square\square}{\square\square\square}$	
$\leftarrow$	$\rightarrow$	$\square^{\square}$	$(\square)$	$ \square $	$\{\square\}$	$\sqrt{\square}$	$\sqrt[n]{\square}$	∞	$\neq$	$\sim$	$\approx$	$\cong$	$\emptyset$	$\rightarrow$	θ	$\log$	$\ln$
Σ																	

TN541709

Label	TN541709	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	4	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.CO.A.2	Standard 1 Text	N/A

Triangle RST is shown.



What is the y -coordinate of the final image of vertex T after the triangle is reflected over the x -axis followed by a shift of 3 units to the left and 2 units up?

TN842783

Label	TN842783	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	1395 - 1397	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.MG.A.2	Standard 1 Text	N/A

Lead has a density of 11.36 grams per cubic centimeter. Iron has a density of 7.87 grams per cubic centimeter.

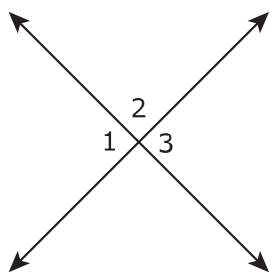
A rectangular prism with dimensions 5 centimeters by 10 centimeters by 8 centimeters is made of each material.

To the nearest gram, how much greater is the mass of the prism made of lead than the one made of iron?

TN941576

Label	TN941576	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	2	Rationale4	N/A
DOK	1	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	No	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.CO.C.9	Standard 1 Text	N/A

The diagram shown is to be used to prove that vertical angles are congruent.



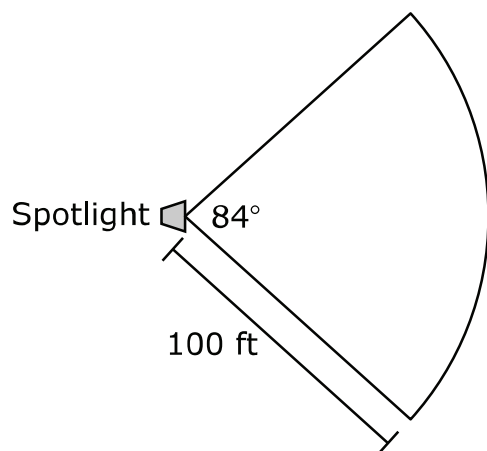
Which of these theorems will be used to prove $\angle 1 \cong \angle 3$?

- ☐ M Complements of the same angle are congruent.
- ☐ P Supplements of the same angle are congruent.
- ☐ R Angles congruent to the same angle are congruent to each other.
- ☐ S All right angles are congruent.

TN742663

Label	TN742663	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	7326-7333	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.C.B.5	Standard 1 Text	N/A

A spotlight has a beam that travels 100 feet and covers an area intercepted by an 84° angle, as shown.



To the nearest square foot, what area does the spotlight cover?

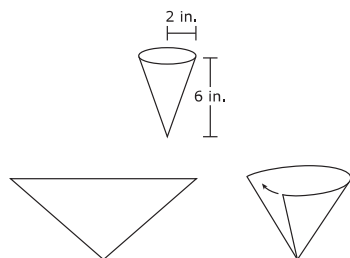
Enter your answer in the space provided.

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$\leftarrow$	$\rightarrow$	$\square^\square$	$(\square)$	$ \square $	$\{\square\}$	$\sqrt{\square}$	$\sqrt[n]{\square}$	∞	$\neq$	$\sim$	$\approx$	$\cong$	$\emptyset$	$\rightarrow$	θ	$\log$	$\ln$
Σ																	

TN042765

Label	TN042765	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	35 to 40	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.MG.A.1	Standard 1 Text	N/A

The waffle cones at the ice cream shop have a radius of 2 inches and a height of 6 inches. They are made using a triangular piece of waffle material, as shown.



What is the approximate area, in square inches, of the triangular piece of waffle material used for the waffle cone?

TN941689

Label	TN941689	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	na	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	F.BF.A.2	Standard 1 Text	N/A

A geometric sequence is represented by the recursive formula $a_1 = 5$, $a_n = a_{n-1}(7)$.

Write the explicit formula to represent the sequence.

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TN545842

Label	TN545842	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	$h(t) = -3(t - 2)^2 + 72$	Rationale4	N/A
DOK	3	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.SSE.B.3	Standard 1 Text	N/A

A model rocket is launched at time $t = 0$ from the top of a hill with a height of 60 feet. The formula $h(t) = -3t^2 + 12t + 60$ gives the rocket's height after t seconds. Write an equivalent form of the equation to reveal the maximum height of the rocket.

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$\square^\square$ $(\square)$ $|\square|$ $\{\square\}$ $\sqrt{\square}$ $\sqrt[n]{\square}$ ∞ $\neq$ $\sim$ $\approx$ $\cong$ $\emptyset$ $\rightarrow$ θ $\log$ $\ln$

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TN545866

Label	TN545866	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	3,4	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.REI.B.4b	Standard 1 Text	N/A

Select all the solutions to the equation $x^2 + 2x + 10 = 0$.

☐ 2

☐ 5

☐ $-1 - 3i$

☐ $-1 + 3i$

☐ $-1 - i\sqrt{11}$

☐ $-1 + i\sqrt{11}$

TN745862

Label	TN745862	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	18 or -18	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.SSE.B.3b	Standard 1 Text	N/A

The polynomial $f(x) = x^2 + kx + 81$ is a perfect square trinomial. What is the value of k ?

TN545892

Label	TN545892	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	1,2	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	F.TF.A.2	Standard 1 Text	N/A

The ordered pairs listed are the coordinates of points on the terminal sides of angles in standard position in the coordinate plane.

Which two ordered pairs give the same value for $\sin \theta$?

☐ $\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$

☐ $\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$

☐ $\left(\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$

☐ $\left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$

☐ $\left(-\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$

TN048721

Label	TN048721	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	$y = -(x+4)(x-2)$ or equivalent	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.CED.A.2	Standard 1 Text	N/A

The graph of a quadratic equation has a maximum of $(-1, 9)$ and has x -intercepts at $x = -4$ and $x = 2$.

Write the equation that could represent the graph.

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TN342790

Label	TN342790	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	1,3	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	G.GPE.A.2	Standard 1 Text	N/A

Consider the parabola with the equation $(x + 5)^2 = 8(y - 6)$.

Which two statements about the parabola are true?

- ☐ The vertex is $(-5, 6)$.
- ☐ The vertex is $(5, -6)$.
- ☐ The directrix is $y = 4$.
- ☐ The directrix is $y = -13$.
- ☐ The directrix is $x = 4$.
- ☐ The directrix is $x = -2$.

TN442698

Label	TN442698	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	choice	Rationale3	N/A
Key	4	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	No	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.REI.A.1	Standard 1 Text	N/A

Consider the equation $x - 2 = \sqrt{4x + 13}$.

Which statement is the first step for solving this equation?

- ☐ M subtract 2 from both sides to get $x = \sqrt{4x + 13} - 2$
- ☐ P add 2 to both sides to get $x = \sqrt{4x + 13} + 2$
- ☐ R square both sides to get $x^2 - 4 = 4x + 13$
- ☐ S square both sides to get $x^2 - 4x + 4 = 4x + 13$

TN845885

Label	TN845885	Max Points	1
Item Grade	HS	Rationale1	N/A
Item Content	Math	Rationale2	N/A
Item Type	textEntry	Rationale3	N/A
Key	70	Rationale4	N/A
DOK	2	Rationale5	N/A
Difficulty	N/A	Rationale6	N/A
Calculator	Yes	Sample Answer	N/A
Ruler	None		
Standard 1 Code	A.APR.D.6	Standard 1 Text	N/A

What is the remainder when $(x^3 + 8x^2 + 6)$ is divided by $(x + 4)$?

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