Nemeth Braille Production

Using MathType & Scientific Notebook

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Comparison

Both programs:

- Use "LaTex" to help us create accurate Nemeth translation
- Allow us to click on pretty pictures of math symbols, without having to understand them (yay!)
- Can be used by regular ed math teachers to create math documents
- Are fairly inexpensive
- Play nice with Duxbury
- Are recommended by different TSBVI outreach personnel

A few differences:

- Scientific Notebook requires us to create & save files, then open separately in Duxbury
- MathType allows us to create documents in Microsoft Word and export directly to Duxbury
- MathType's company, Design Science, has worked recently with TSBVI, and actively works to update items
- Scientific Notebook is also an actual scientific calculator
- MathType allows us to create our OWN shortcuts for maximum efficiency

Scientific Notebook: Getting Started

- Customizing Toolbars
  - View/Toolbars, Check boxes for:
    - Standard, Math Templates, Math Objects, Compute, Symbol Panels, Symbol Cache (& click Large Buttons)
  - For frequently used buttons on the drop down symbols, you can click and drag them to a toolbar ☺
- T vs. M
- Shortcuts
- Creating Nemeth
- Creating Graphs

Creating Nemeth:

- Create a new file
- Click the needed icons to create your math
- Watch out for T and M [Hint: you can click, or use shortcuts ctrl+T and ctrl+M]
- Use tab to move among the fill-in boxes
- Press Space to get out of the fill-in boxes
- When finished, save file.
- Open Duxbury, open your file, ctrl+T, &....
- VOILA!...But remember to proofread & correct any mistakes with 6-key entry ☺

Creating a Graph

- Make sure you are in M
- Write an equation (example: y=2x+3)
- Compute/Plot 2D/Rectangular
- Click to select the graph
- Right click, select Properties
  - Layout Tab: Select Plot Only (Both)
  - Items Plotted, Line Thickness: Choose Thick
  - Axes Tab:
    - Check "disable tick labeling"
    - Choose "Custom" for both x and y axis labels

Importing graphs into Microsoft Word

- Click on graph and "select all" (ctrl+A)
- Right click "copy picture"
- Open Microsoft Word
- Right click, "paste options", choose "picture" icon
- Create a text box to label, using Braille 29 font at size 28 (download TrueType font from TSBVI)
- Emboss with a Viewplus/Tiger or PIAF ☺

MathType: Getting Started

- See handout of keyboard shortcuts & process to create your own
- Follow process & add the suggested shortcuts (all that are not labeled as "default")

MathType Basics

- Open Microsoft Word, and you'll notice a MathType tab ☺
- Write text within Microsoft Word, and when you get to Nemeth, open MathType with <u>ctrl+alt+q</u>
- Use icons to input math (notice—they have a quadratic equation button, which would have saved us time in Scientific Notebook!), using tab to move between and out of fields, (instead of space)
- Close & update the word document with <u>ctrl+s</u>
- Continue this process until document is done

Ready, set, translate, with Tiger Software Suite!

- Click on Add-In's, Tiger, Formatter Settings
  - Language Settings: Grade 2 (or 1), Math Braille Type=Nemeth
  - Braille & Ink Settings: You can have your work interlined, if you like. It won't emboss, unless you have a combination ink+braille device
- When Formatter Settings are set, click on Add-In's, Tiger, Translate Document

Ready, set, translate...with Duxbury!

- Save word file, open Duxbury, open file, translate

Additional Options…

- If you have multiple students, you can create separate formats/profiles for them within TSS
- Check out Viewplus' extensive list of tutorials

Tactile Graphics: Tables

Example 11-2: Simple Table

Animal	Longest Life Span
mosquito	30 days
gorilla	50 years
elephant	65 years

Example 11-3: Related Columns

Infinitive	Past	Past Participle
awake	awoke	awoken
be	was, were	been
bear	bore	born
beat	beat	beat
become	became	become
begin	began	begun
bend	bent	bent

Sample 11-18: Partially Filled-In Table

Cause	→	Effect
Ed told a lie.	→	I got upset.
Ed denied it.	→	I got angrier.
Ed betrayed others.	→	He ended up friendless.
	→	
	→	
	→	

1 ⠿⠒⠒⠿

2

3 (braille line)

4

5

6

7

8

9

10

11

12

13

14 (braille line)

15

For everything you ever wanted to know about tables…

- http://www.brailleauthority.org/formats/2011manual-web/
- See the Samples at the end of section 11

Tactile Graphics: The Pictures

- Import from APH Tactile Graphics Library
- Draw using drawing tools in Microsoft Word and/or Paint
- Import graphs from Scientific Notebook
- Use screenshots or snipping tools to copy pictures from anywhere and insert into word
- Create templates of commonly used items, so that you don't have to re-draw the wheel!

Drawing Considerations

- Customize your toolbar with commonly used tools
- Make sure to group items (tip-save in doc, not docx, use select tool & group tool), or they will literally "fall apart" when you translate

Tactile Graphics: The Labels

- Add graphic to Microsoft Word document (whether drawn, copied, imported)

- Add text boxes
  - Type text from within Microsoft Word, translate using Tiger
  - Set to Braille29, size 28, and type
  - Copy & Paste from Duxbury braille document, highlight and set to Braille29, size 28

Labeling Considerations

- After you've inserted 1 textbox, highlight it, press ctrl+d to make identical ones (duplicate)
- After text is complete, remove outline of box
- Some of your decisions will depend on what your labels are—contracted, noncontracted, literary, nemeth, etc.
- It's easier to keep one file of graphics, another of labels, and then copy/paste the labels
- Hint: use 28 size print, to keep in mind how large the braille will be

Types of Questions Commonly Seen on STAAR assessments

- Information in a table
- Read & Interpret bar graphs
- Narrative—nice & easy!
- Read clock faces
- Coordinate plane/grid
- Analyze graphs (lines, parabolas, etc.)

Using the Chart Wizard

- Create chart in Microsoft Word, removing all labels
- Add text boxes for labels
- Hint: you can right click the chart, select Chart Object to change the data (see example). Theoretically, you could create stock templates of types of charts, and modify as needed
- Note: If using the Translate option for labels, select only the textboxes, and choose Translate Selection, rather than Translate Document, since you can't group the graph automatically generated

References

- Top 8 Most Common Graphs
- ASCII Braille Reference Sheet (Wikipedia)
- Practice: standardized test questions
- Nemeth Cheatsheets http://tsbvi.edu/resources-math/1552-nemeth-code-reference-sheets

Eight Basic Algebraic Curves

By Mary Jane Sterling

Part of the Algebra II For Dummies Cheat Sheet

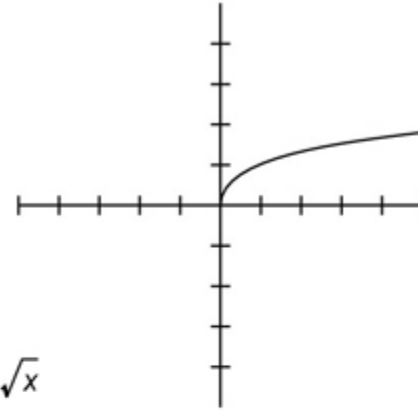Algebra is all about graphing relationships, and the curve is one of the most basic shapes used. Here's a look at eight of the most frequently used graphs.
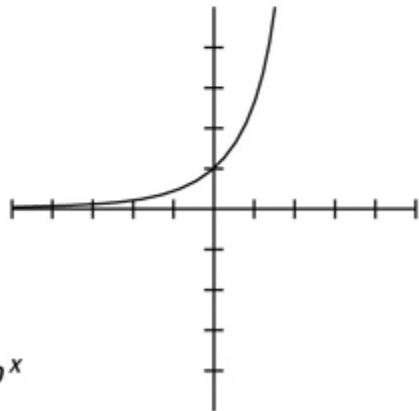
$y = x$

$y = x^2$
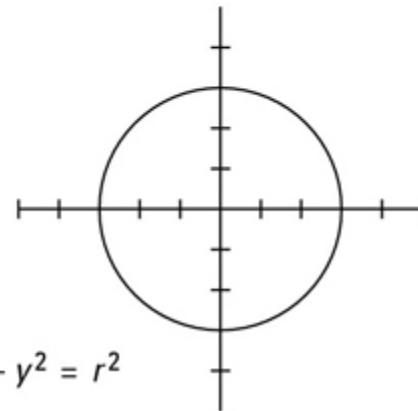
$y = x^3$

$y = |x|$
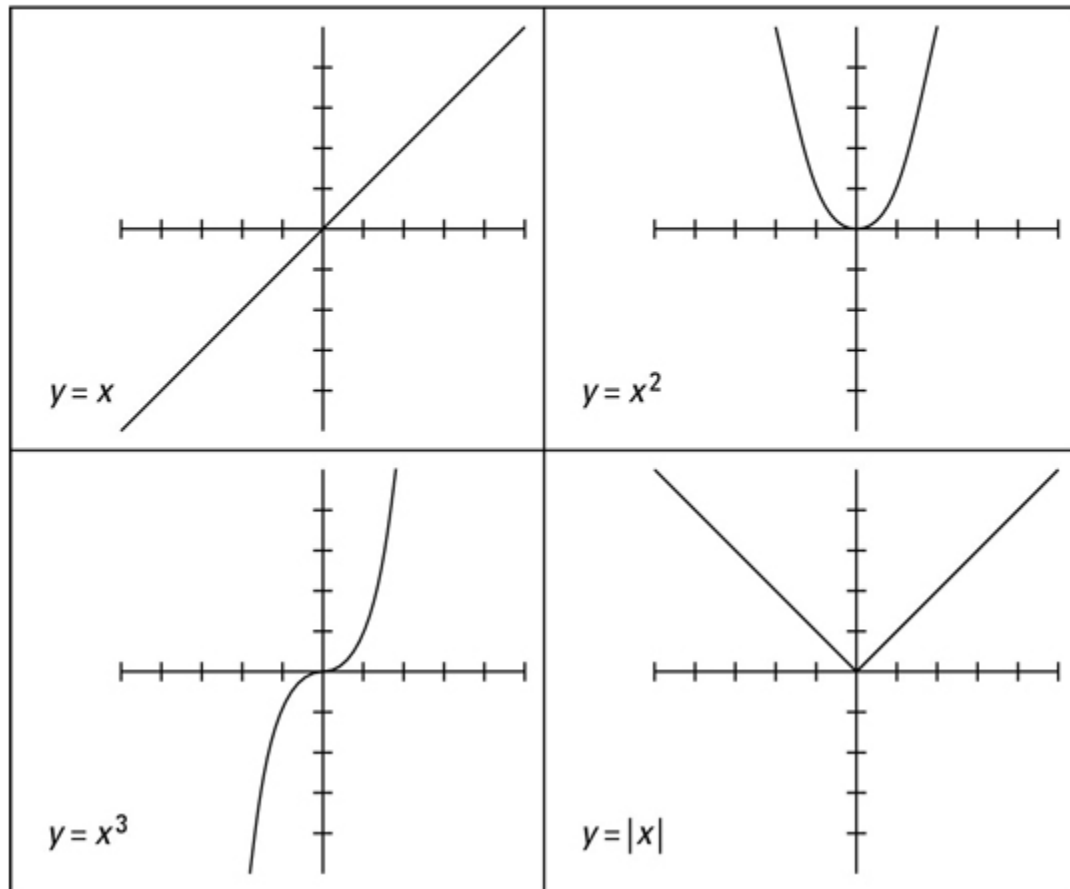
$y = \dfrac{1}{x}$
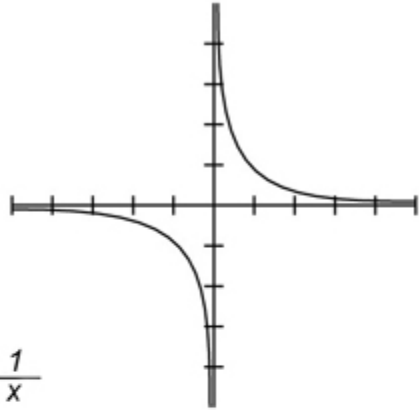
$y = \sqrt{x}$

$y = b^x$

$x^2 + y^2 = r^2$

Hex	ASCII Glyph	Braille Dots	Braille Glyph	Braille Meaning
20	(space)			(space)
21	!	2-3-4-6		The
22	"	5		(contraction)
23	#	3-4-5-6		(number prefix)
24	$	1-2-4-6		Ed
25	%	1-4-6		Sh
26	&	1-2-3-4-6		And
27	'	3		'
28	(	1-2-3-5-6		of

Hex	ASCII Glyph	Braille Dots	Braille Glyph	Braille Meaning
29	)	2-3-4-5-6		with
2A	*	1-6		ch
2B	+	3-4-6		ing
2C	,	6		(uppercase prefix)
2D	-	3-6		-
2E	.	4-6		(italic prefix)
2F	/	3-4		st
30	0	3-5-6		"
31	1	2		,
32	2	2-3		;

Hex	ASCII Glyph	Braille Dots	Braille Glyph	Braille Meaning
33	3	2-5		:
34	4	2-5-6		.
35	5	2-6		en
36	6	2-3-5		!
37	7	2-3-5-6		(or)
38	8	2-3-6		" or ?
39	9	3-5		in
3A	:	1-5-6		wh
3B	;	5-6		(letter prefix)
3C	<	1-2-6		gh

Hex	ASCII Glyph	Braille Dots	Braille Glyph	Braille Meaning
3D	=	1-2-3-4-5-6		for
3E	>	3-4-5		ar
3F	?	1-4-5-6		th

Hex	ASCII Glyph	Braille Dots	Braille Glyph	Braille Meaning
40	@	4		(accent prefix)
41	A	1		a
42	B	1-2		b
43	C	1-4		c
44	D	1-4-5		d

Hex	ASCII Glyph	Braille Dots	Braille Glyph	Braille Meaning
45	E	1-5		e
46	F	1-2-4		f
47	G	1-2-4-5		g
48	H	1-2-5		h
49	I	2-4		i
4A	J	2-4-5		j
4B	K	1-3		k
4C	L	1-2-3		l
4D	M	1-3-4		m
4E	N	1-3-4-5		n

4F	O	1-3-5	⠕	o
50	P	1-2-3-4	⠏	p
51	Q	1-2-3-4-5	⠟	q
52	R	1-2-3-5	⠗	r
53	S	2-3-4	⠎	s
54	T	2-3-4-5	⠞	t
55	U	1-3-6	⠥	u
56	V	1-2-3-6	⠧	v
57	W	2-4-5-6	⠺	w
58	X	1-3-4-6	⠭	x

59	Y	1-3-4-5-6	⠽	y
5A	Z	1-3-5-6	⠵	z
5B	[	2-4-6	⠪	ow
5C	\	1-2-5-6	⠳	ou
5D	]	1-2-4-5-6	⠻	er
5E	^	4-5	⠘	(currency prefix)
5F	_	4-5-6	⠸	(contraction)

5th Grade STAAR Questions

The table below shows the total number of juice bottles in different numbers of boxes.

Juice Bottles

Total Number of Juice Bottles	Number of Boxes
54	3
90	5
108	6
162	9

Which statement describes the relationship between the total number of juice bottles and the number of boxes?

A The total number of juice bottles plus 36 equals the number of boxes.

B The total number of juice bottles divided by 18 equals the number of boxes.

C The total number of juice bottles times 3 equals the number of boxes.

D The total number of juice bottles minus 51 equals the number of boxes.

Owen lives 145.25 kilometers from Houston, Texas. Sharon lives 209.5 kilometers from Houston. What is the difference between these two distances?

F 64.25 km

G 54.35 km

H 124.30 km

J 144.35 km

Billy will place point W at the coordinates (7, 6) on the coordinate grid below.
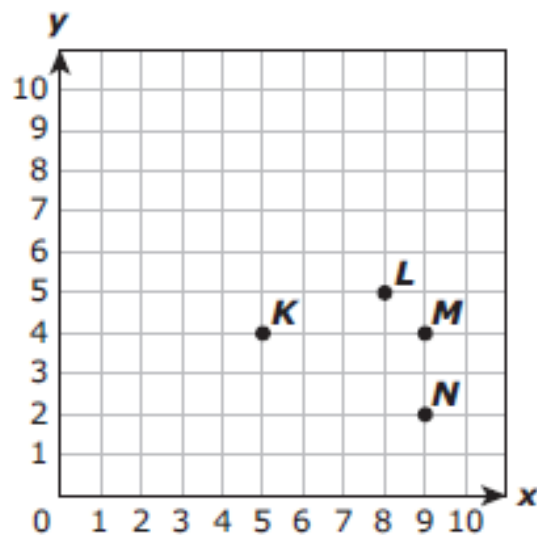
Billy will then circle the point that is 2 units right and 2 units down from (7, 6). Which point will Billy circle?

A Point K

B Point L

C Point M

D Point N

6 Edna completed $4\frac{2}{3}$ puzzles. Which improper fraction is equivalent to the number of puzzles Edna completed?

F $\dfrac{9}{3}$

G $\dfrac{14}{3}$

H $\dfrac{10}{3}$

J $\dfrac{24}{3}$

Five people each bought a box of straws. In Aaron's box $\frac{6}{20}$ of the straws were green. The table below shows the fraction of green straws in the other four boxes.

Straws

Name	Fraction of Green Straws
Lance	$\frac{3}{10}$
Cindy	$\frac{10}{40}$
Eric	$\frac{3}{30}$
Fred	$\frac{7}{10}$

Based on the table, which two people had boxes in which less than $\frac{6}{20}$ of the straws were green?

A Lance and Fred

B Lance and Cindy

C Eric and Fred

D Cindy and Eric

The graph below shows the number of pages Joaquín read each day for six days last week.

Pages Read
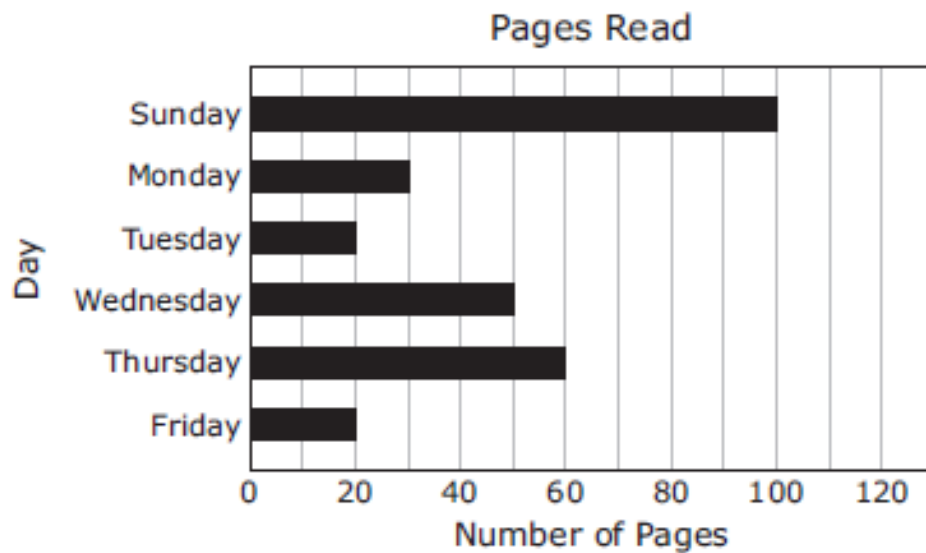
What is the median number of pages in this set of data?

F 35

G 40

H 20

J 80

Lakin drew the figure below.
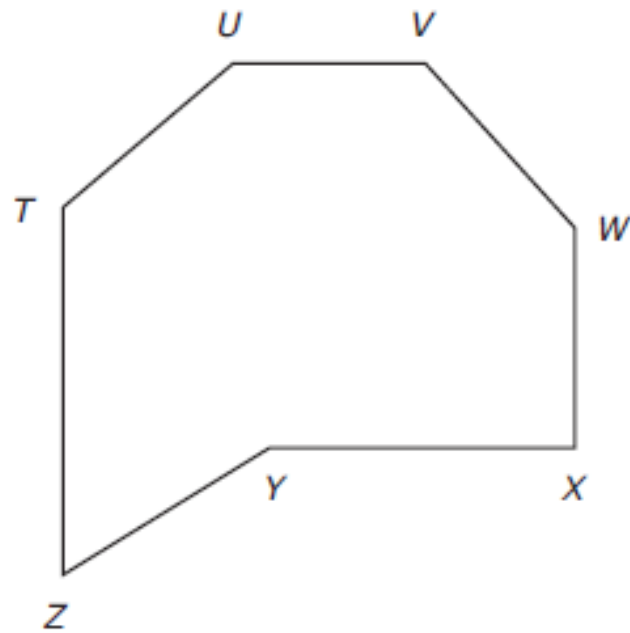
Which line segments intersect each other but do not appear to be perpendicular?

A $\overline{UV}$ and $\overline{VW}$

B $\overline{WX}$ and $\overline{TZ}$

C $\overline{WX}$ and $\overline{XY}$

D $\overline{UV}$ and $\overline{XY}$

Line *m* is shown on the coordinate grid below.
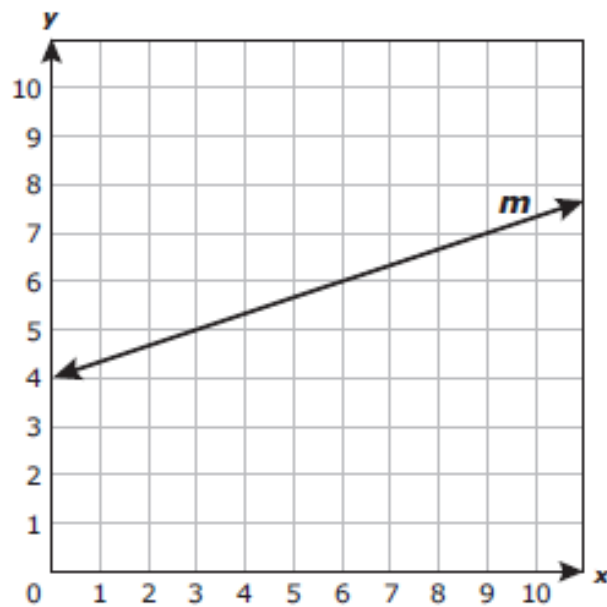
Which ordered pair represents a point that is located below line *m*?

F (3, 5)

G (10, 6)

H (2, 8)

J (4, 10)

8th Grade STAAR Questions

51 A 7-inch candle burns at a rate of 2 inches an hour. Which equation represents the relationship between y, the height of the candle in inches, and x, the number of hours the candle burns?

A $y = 2x + 7$

B $y = 7 - 2x$

C $y = 2 - 7x$

D $y = 7x + 2$

Triangle *PQR* is similar to triangle *XYZ*.
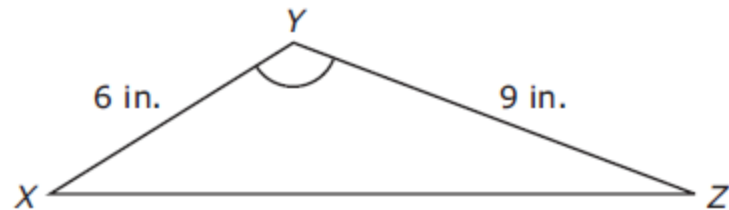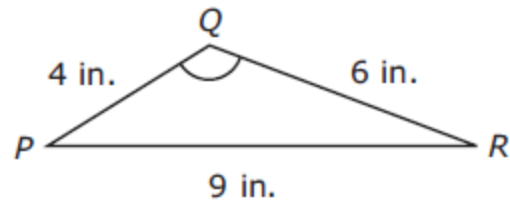
What is the length of $\overline{XZ}$?

F 11 in.

G 13.5 in.

H 9 in.

J 20.25 in.

To make 6 glasses of lemonade, Karla uses $\frac{1}{2}$ cup of sugar, $\frac{1}{2}$ cup of lemon juice, and $5\frac{1}{2}$ cups of water. If Karla wants to make 10 glasses of lemonade, which proportion can she use to determine how many cups of water, w, she will need?

F $\quad \dfrac{6.5}{6} = \dfrac{10}{w}$

G $\quad \dfrac{6}{6.5} = \dfrac{10}{w}$

H $\quad \dfrac{10}{5.5} = \dfrac{6}{w}$

J $\quad \dfrac{6}{5.5} = \dfrac{10}{w}$

Ted created a graph to show the percentage of time he spends on different activities during a school day.

Ted's Activities
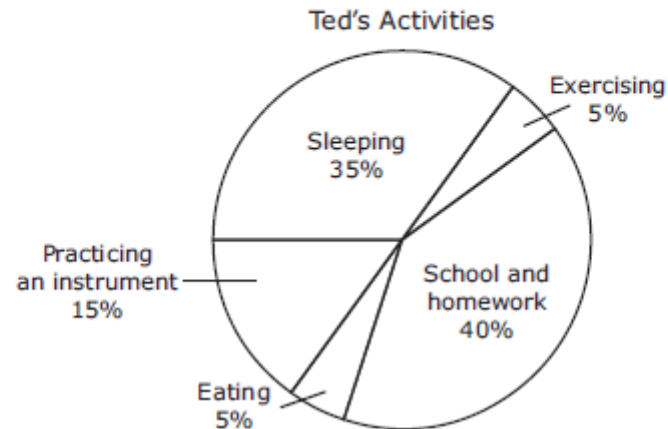
Ted concluded from the graph that he spends about 48 hours at school and doing homework during a five-day school week. Which statement about Ted's conclusion is true?

F Ted's conclusion is invalid because $\frac{1}{4}$ of 120 is 30.

G Ted's conclusion is invalid because 40% of 24 is 9.6.

H Ted's conclusion is valid because 40% of 120 is 48.

J Ted's conclusion is valid because $\frac{1}{4}$ of 192 is 48.

Algebra EOC

What is the vertex of the graph of the quadratic function $f(x) = x^2 + 6x + 10$?

F (3, −1)

G (−3, −1)

H (−3, 1)

J (3, 1)

A graph is shown below.
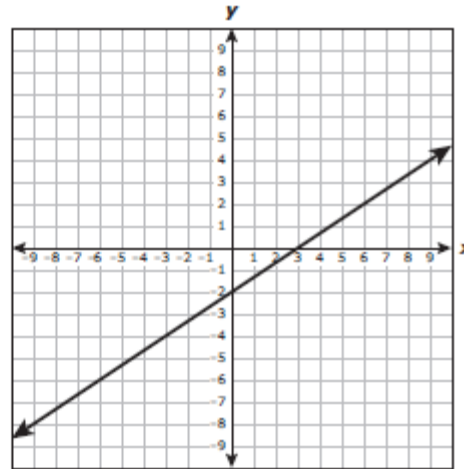
Which of the following equations are represented by the graph?

I. $y = -\dfrac{3}{2}x - 2$

II. $2x - 3y = 6$

III. $y = (x - 2)(x - 3)$

IV. $y - 2 = \dfrac{2}{3}(x - 6)$

A II and IV

B I and III

C II and III

D I and IV

In which step below does a mistake first appear in simplifying the expression $0.5(-12c + 6) - 3(c + 4) + 10(c - 5)$?

Step 1: $-6c + 3 - 3(c + 4) + 10(c - 5)$

Step 2: $-6c + 3 - 3c - 12 + 10(c - 5)$

Step 3: $-6c + 3 - 3c - 12 + 10c - 50$

Step 4: $7c - 41$

A Step 1

B Step 2

C Step 3

D Step 4

The graph of $y = 3x^2 - 2$ is shown below.
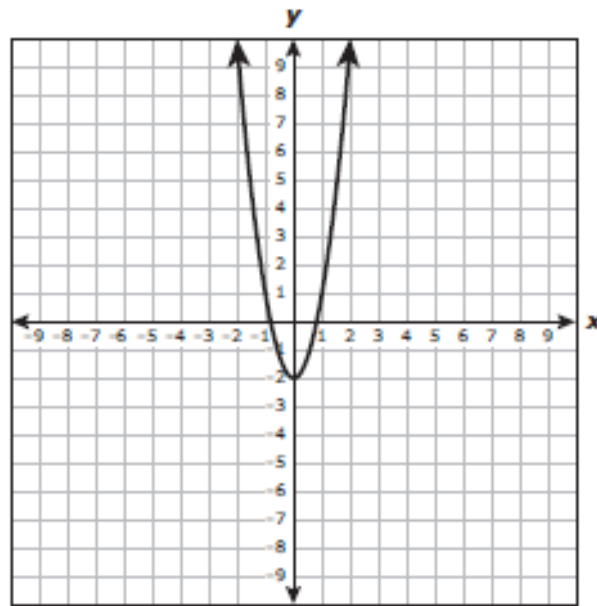
If the coefficient of x^2 is changed from 3 to another positive number to create a new function, how will the graph of the new function compare with the graph of the original function?

A   The x-intercepts of the new graph will be the same as the x-intercepts of the original graph.

B   The vertex of the new graph will be different from the vertex of the original graph.

C   The new graph will be wider or narrower than the original graph.

D   The new graph will open in the opposite direction as the original graph.

Which expression is equivalent to $\dfrac{12x^6y^{-4}z^2}{3x^2y^{-6}z^3}$?

A $\quad \dfrac{9x^8z^5}{y^{-10}}$

B $\quad \dfrac{4x^8z^5}{y^{-10}}$

C $\quad \dfrac{9x^4y^2}{z}$

D $\quad \dfrac{4x^4y^2}{z}$

Geometry EOC

Rectangle *STUW* is shown below.
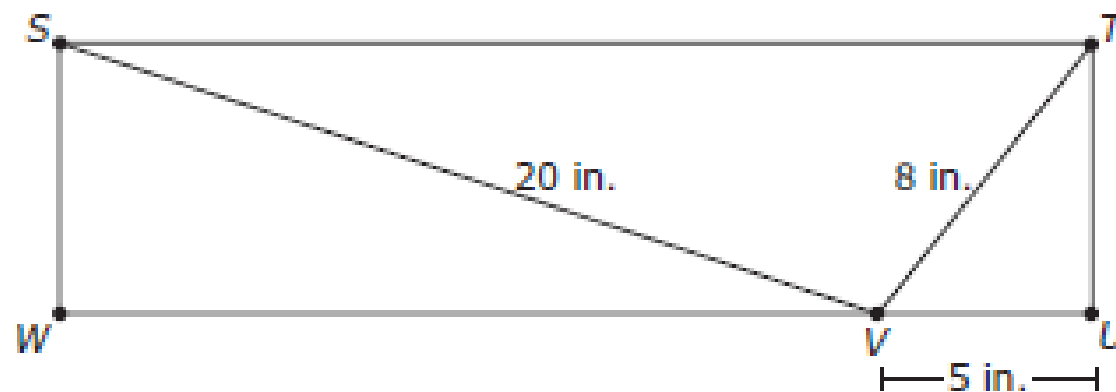
What is *ST*?

A 33 in.

B 24 in.

C $\sqrt{464}$ in.

D $\sqrt{361}$ in.

The table below contains a pattern formed by the number of sides and the measure in degrees of each exterior angle of several regular convex polygons.

Exterior Angle Measures of Regular Polygons

Number of Sides	3	4	5	6	10	15	20	45	90
Exterior Angle Measure (degrees)	120	90	72	60	36	24	18	8	4

If the pattern in the table continues, which statement is true?

A As the number of sides in the polygon increases by 1, the measure of each exterior angle decreases by 25%.

B The product of the number of sides in the polygon and the measure of each exterior angle is a constant.

C The measure of each exterior angle is a multiple of 6 degrees.

D If the number of sides in the polygon is even, the measure of each exterior angle is a multiple of 3 degrees.
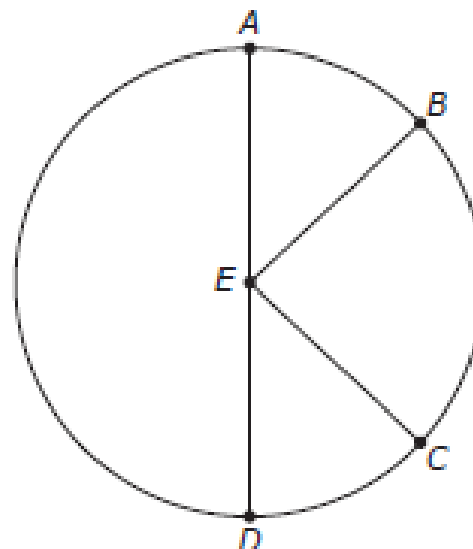
The hand on the circular clock in the figure below measures 10 cm.
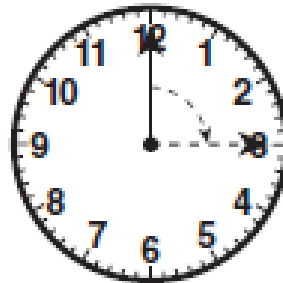
Which of the following is closest to the distance that the tip of the hand travels as it moves from the 12 to the 3?

A 79 cm

B 21 cm

C 63 cm

D 16 cm

In circle E below, $\angle AEB \cong \angle CED$.
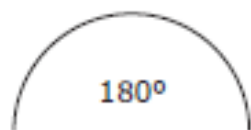

Based on this information, which statement must be true?

F $\overline{AB} \cong \overline{CD}$
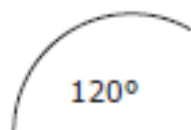
G $\overline{EB} \perp \overline{EC}$

H $m\angle AED = 4(m\angle DEC)$
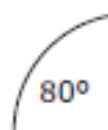
J $m\angle AEB + m\angle DEC = m\angle BEC$

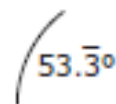The first four stages of a pattern of arcs from congruent circles are shown below.

180°	120°	80°	53.3̄°
Stage 1	Stage 2	Stage 3	Stage 4

If this pattern continues, which expression can be used to find the degree measure of the arc in Stage n?

A $20(10 - n^2)$

B $180\left(\dfrac{1}{3}\right)^{(n-1)}$

C $60(4 - n)$

D $270\left(\dfrac{2}{3}\right)^{n}$

The slopes of the sides of quadrilateral *ABCD* are shown in the table below.

Side	Slope
$\overline{AB}$	$\frac{2}{5}$
$\overline{BC}$	$-\frac{2}{5}$
$\overline{CD}$	$\frac{2}{5}$
$\overline{AD}$	$-\frac{5}{2}$

Which statement describes the relationships between the sides of the quadrilateral?

A $\overline{AD}$ is parallel to $\overline{BC}$, but $\overline{AB}$ is not parallel to $\overline{CD}$.

B $\overline{AB}$ is parallel to $\overline{CD}$, but $\overline{AD}$ is not parallel to $\overline{BC}$.

C $\overline{AB}$ is parallel to $\overline{CD}$, and $\overline{AD}$ is parallel to $\overline{BC}$.

D $\overline{AD}$ is not parallel to $\overline{BC}$, and $\overline{AB}$ is not parallel to $\overline{CD}$.

Questions???

☺