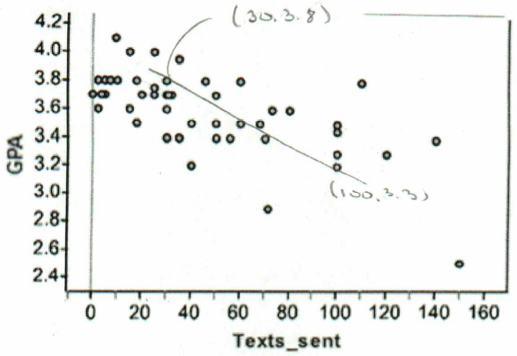
NOTE: THIS IS SCANNED LAST PAGE FIRST…

MATH 1: Accelerated

10) The following scatterplot displays data for GPA and Texts sent by a sample of Newton North High School Students:



a. Is there a **relationship** between Texts Sent and GPA? If yes, describe the relationship.

slight linear relationship → negative

texts ↑ GPA ↓

b. If the data shows a linear relationship, estimate the correlation coefficient for the data set and justify your reasoning. 0.3

c. Write **the equation** that would best model the relationship described in part a.

$\frac{3.8-3.3}{30-100} = \frac{0.5}{-70} = -\frac{5}{700} = \frac{-1}{140}$

$y - 3.8 = \frac{-1}{140}(x - 30)$

d. Describe the meaning of the slope of your line in the context of the problem.

as # texts ↑ by 140 GPA ↓ by 1

GPA

for every text sent GPA ↓ by 0.007

Quadrilaterals:

For #11-14, circle the appropriate answers.

11)Which TWO statements are true:

a. All rectangles are always squares.

b. All squares are always rhombuses.

c. All trapezoids are parallelograms.

d. All rectangles are always parallelograms.

12)Choose the best answer:
If I draw the sides of a figure and consecutively the sides measure 9 inches, 5 inches, 9 inches and 5 inches without any other information you can determine that I've drawn a

a. Rectangle.

b. Rhombus.

c. Parallelogram.

d. Square.

13)A figure with four sides and perpendicular diagonals could be a

a. Rhombus or square.

b. Rectangle or square.

c. Trapezoid or rhombus.

d. Rectangle or trapezoid.

14)A quadrilateral that has diagonals that bisect each other could NOT be a

a. Rectangle,

b. Rhombus.

c. Parallelogram.

d. Trapezoid.

Write the appropriate answer in the space provided.

15)Identify which quadrilateral has ALL of the properties listed:

a. Opposite sides are congruent.

▱, rectangle, square, rhombus

b. Opposite sides are parallel

same

16)Name the quadrilateral that has at least two parallel sides.

trapezoid (at least)

▱ rhombus, square, rectangle

17) Name the quadrilateral that has **ALL** the properties listed below:

- Opposite sides are congruent.
- Opposite sides are parallel
- At least one angle is a right angle.

rectangle

18)Name the quadrilaterals with diagonals that always bisect each other.

parallelogram
rhombus
rectangle

Write the appropriate answer in the space provided.

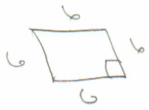
19) Name the quadrilaterals that have perpendicular diagonals.

kite, rhombus, square

20) Name the quadrilaterals that have congruent diagonals.

rectangle, square
isosceles trapezoid

21) The perimeter of a square is 24. Sketch a figure and then find the length of the diagonal of the square and write it in simplest radical form.



$6^2 + 6^2 = d^2$

$72 = d^2$

$6\sqrt{2} = d$

22) The opposite sides of a parallelogram are represented by $2x + 10$ and $5x - 20$. Find the length of the side represented by $4x - 1$.

? is this a side

$2x + 10 = 5x - 20$

$30 = 3x$

$10 = x$

MATH 1: Accelerated

Transformations:

9) Circle which transformations below are **rigid transformations**. (In other words, circle ALL that will produce an image **congruent to** the preimage):

a) Translate the image up 4 units and right 6 units.

b) $(x,\ y)\rightarrow(8x,\ -y+2)$

c) $(x,\ y)\rightarrow(-y,\ 5x)$

d) $(x,y)\rightarrow(x-4,\ 2(y\ +3))$

e) $(x,\ y)\rightarrow(y-2,\ x\ +\ 1)$

f) Rotate 180 degrees about the point $(2,\ 3)$.

Same pair for previous pair

10) Given $P=(-6,2)$, identify the coordinates of the image P' when the following transformations are performed:

a) $(x,\ y)\rightarrow(x\ +14,\ y-9)$		b) (x,y) is reflected over the $x-axis$.	
c) (x,y) is rotated 90 degrees.		d) (x,y) is reflected over the $y-axis$	
e) $((x,y)$ is rotated 180 degrees.		f) (x,y) is reflected over the line $y=-x$	
g) (x,y) is reflected across the line $y=4$		h) (x,y) is rotated 90 degrees about the origin then reflected across $y=x$	
i) $(x,y)\rightarrow(y-2,\ x+1)$ and then rotated 270 degrees.			

76. Given $\Delta ECD \cong \Delta EBA$, write the value of each requested measure.

a. $m\angle B =$ 58

b. $m\angle D =$ 32

c. $m\angle CED =$ 90°

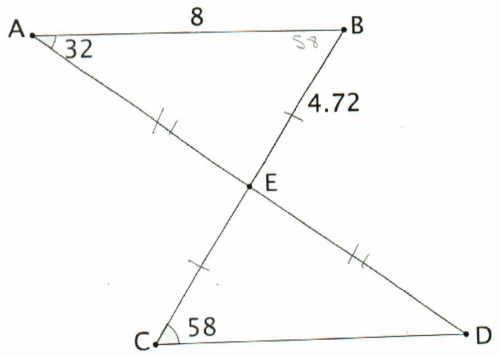
d. $m\angle AEB =$ 90°

e. $m\angle BED =$ 90°

f. $EC =$ 4.72

g. $CD =$ 8

h. $CB =$ 2(4.72) = 9.44



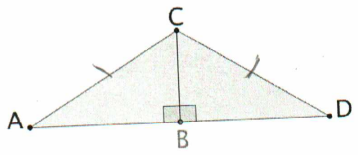
4.72
× 2
9.44

Two Column Proofs

77. Write a two-column proof for each problem below:

Given: $\angle DBC$ and $\angle ABC$ are right angles
$\overline{DC} \cong \overline{AC}$

Prove: $\Delta DBC \cong \Delta ABC$



Statements	Reasons
1. $\angle DBC$ & $\angle ABC$ are right $\angle$s; $\overline{DC} \cong \overline{AC}$	1. Given
1.5 ΔACD is isosceles	1.5 a Δ with 2 $\cong$ sides is isosceles
2. $\angle A \cong \angle D$	2. base $\angle$s of isosceles Δs are $\cong$
3. $\angle DBC \cong \angle ABC$	3. all right $\angle$s are $\cong$
4. ΔAC	

Given the diagram below,

a. Write an equation that models the relationship of the sides of the triangle
b. State the reason for your equation.
c. Algebraically solve for the value of ***x***
d. Algebraically solve for the requested measures

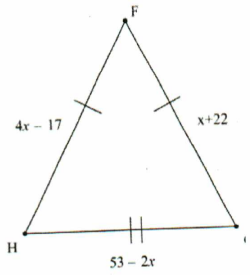
64.

Equation: $4x - 17 = x + 22$

Reason: legs of isosceles Δ are ≅

$4x - 17 = x + 22$
$3x = 39$
$x = 13$

$x =$ 13



$FH =$ $4(13) - 17$

$FG =$ $13 + 22 = 35$

$HG =$ $53 - 26 =$

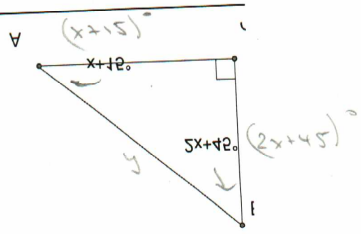
65.

Equation: $3x + 60 = 90$

Reason: Supplementary Δ sum to 90

$x + 15 + 2x + 45 = 90$
$3x + 60 = 90$
$3x = 30$
$x = 10$

$x =$ 10



$\measuredangle A =$ 25°

$\measuredangle B =$ 65°

$\measuredangle C =$ 90°

54. **Statement**	**Reason**
1) $\measuredangle 1 \cong \measuredangle 7$	1) Given
2) $m\angle 1 = m\angle 7$	2) def $\cong$

55. **Statement**	**Reason**
1) $\measuredangle 3$ *and* $\measuredangle 8$ *are supplementatry angles*	1) Given
2) $m\angle 3 + m\angle 8 = 180$	2) 2 $\measuredangle$s supplementary sum to 180.

56. **Statement**	**Reason**
1) $\measuredangle 8$ *and* $\measuredangle 10$ *are both supplementary to* $\measuredangle 7$	1) Given
2) $\angle 8 \cong \angle 10$	2) supplements to the same $\measuredangle$ are $\cong$

57. **Statement**	**Reason**
1) $x + \frac{1}{2} = 9$	1) Given
2) $2(x + \frac{1}{2}) = 18$	2) multiplication prop =
3) $2x + 1 = 18$	3) distributive prop multiplication over +
4) $2x = 17$	4) addition prop = (converse Simp Subtraction)
5.) $x = \frac{17}{2}$	5.) multiplication prop = (division

Instructions: Look at the listed given information.
Write the **next immediate conclusion** in the left column (under statement).
Write its **respective reason** next to it in the right hand column.

50. **Statement**	**Reason**
1) $m\measuredangle 1 = 20°$ $m\measuredangle 1 = m\measuredangle 2$	1) Given
2) $m\angle 2 = 20$	2) reflexive prop =

51. **Statement**	**Reason**
1) $m\measuredangle 1 + m\measuredangle 5 = 90°$	1) Given
2) $\angle 1 \cong \angle 5$ are complementary	2) 2 $\measuredangle$s sum to 90° are complementary

52. **Statement**	**Reason**
1) $\measuredangle A$ *and* $\measuredangle B$ *are complementary*	1) Given
2) $m\angle A + m\angle B = 90$	2) Complementary $\measuredangle$s sum to 90°

53. **Statement**	**Reason**
1) $m\measuredangle Q + m\measuredangle R = 180°$	1) Given
2) $\angle Q \& \angle R$ are Supplementary	2) 2 $\measuredangle$ sum to 180° are Supplementary

The following diagrams represent figure $ABCD$ and a transformation that the figure undergoes.

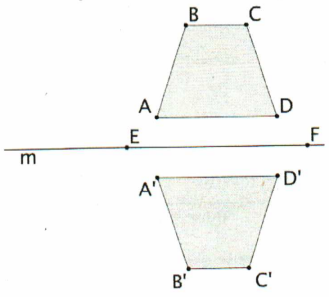
a. Name each transformation by writing "**rotation**," "**reflection**," "**translation**" or "**none.**"

b. **If:** the figure ABCD undergoes a **rigid transformation**,
Then: Write a **correspondence statement** that clearly describes the transformation.

40.

a. reflection $\overleftrightarrow{EF}$

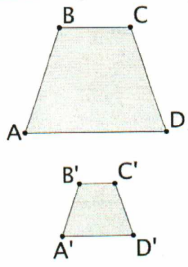
b. quad ABCD ≅ quad A'B'C'D'



41.

a. Scale change shrink / contraction

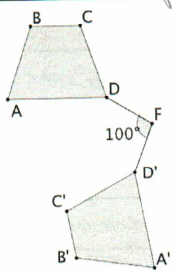
b. not rigid transformation → size changes



42.

a. rotation 100° counterclockwise

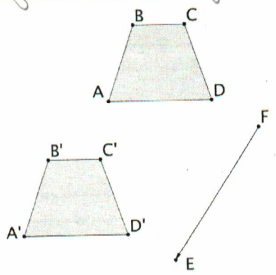
b. quad ABCD ≅ quad A'B'C'D'



43.

a. translation $\overrightarrow{EF}$

b. quad ABCD ≅ quad A'B'C'D'



Naming and Notation of Figures: Given each geometric figure below, write the requested name using appropriate symbols and notation.

1. Given the figure

a) Name the figure $\overrightarrow{AB}$

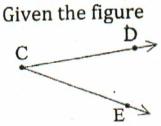
b) The distance from A to B AB

2. Given the figure

a) Name the figure $\overline{CD}$

b) The length from C to D below CD

3. Given the figure



a) Name the figure $\triangle DCE$ or $\angle C$

b) How do we express the measure of the angle? $m\angle DCE$

4. Given the figure

a) Name the figure $\overleftrightarrow{ED}$ or line m

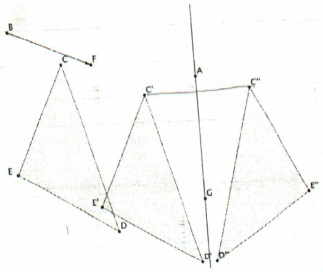
b) The length from E to D ED

* note: notation-

44. Rotations can be done through a composite of reflections. TRUE

45. Translations can be done through a composite of reflections.

46. Given the transformation below



a. Write a **correspondence statement** that clearly describes the **sequence** of transformations:

$(r_{\overleftrightarrow{AG}} \circ T_{\overrightarrow{BF}})\triangle CED$ translation using vector $\overrightarrow{BF}$ then reflected over $\overleftrightarrow{AG}$

b. Write a congruence statement for the preimage and final image: $\triangle CED \cong \triangle C''E''D''$