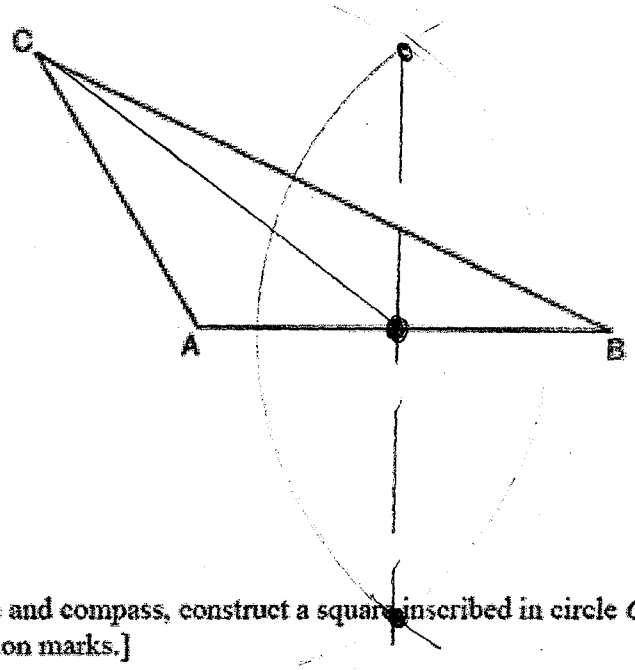
Name Key

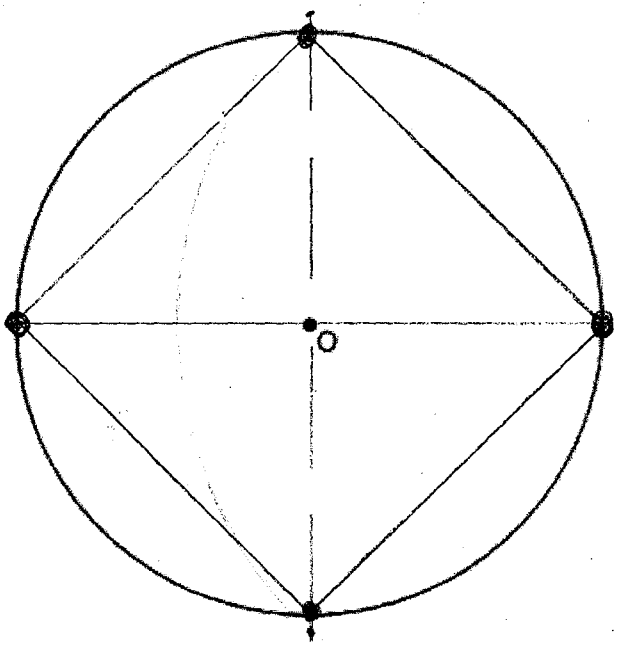
# Geometry Pre-IB Mid-term Review

## Constructions

1) In the diagram of $\triangle ABC$ shown below, use a compass and straightedge to construct the median to $\overline{AB}$. [Leave all construction marks.]

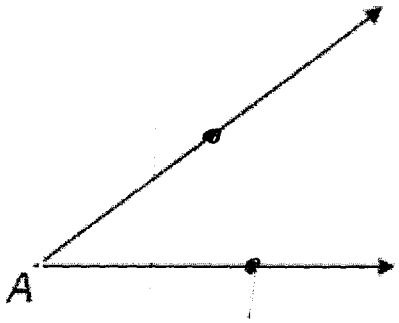


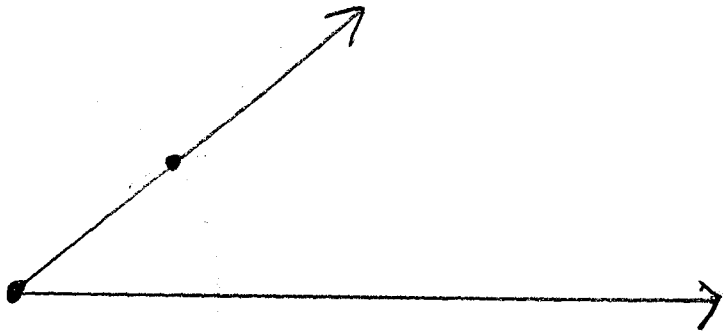

2) Using a straightedge and compass, construct a square inscribed in circle $O$ below. [Leave all construction marks.]



3)

Construct $\angle D$ congruent to $\angle A$.



4.

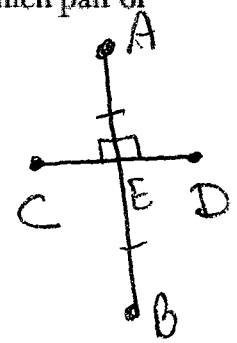
Segment $CD$ is the perpendicular bisector of $\overline{AB}$ at $E$. Which pair of segments does *not* have to be congruent?

(1) $\overline{AD}, \overline{BD}$

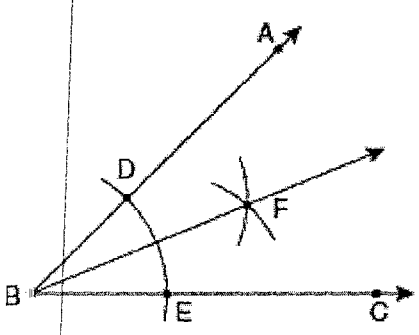
(2) $\overline{AC}, \overline{BC}$

3) $\overline{AE}, \overline{BE}$

4) $\overline{DE}, \overline{CE}$




5)The diagram below shows the construction of the bisector of $\angle ABC$.




Which statement is *not* true?

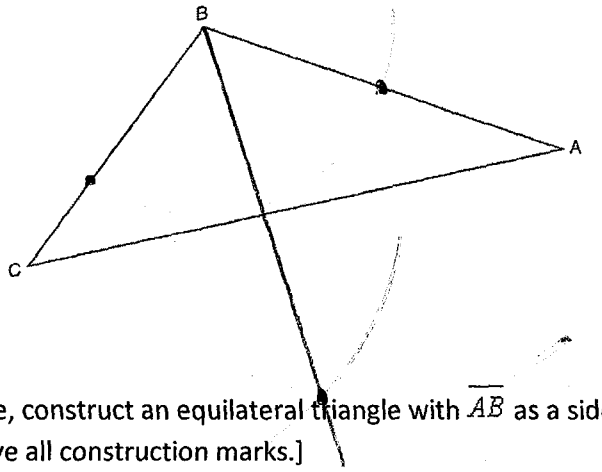
1) $\text{m}\angle EBF = \frac{1}{2}\,\text{m}\angle ABC$

2) $\text{m}\angle DBF = \frac{1}{2}\,\text{m}\angle ABC$

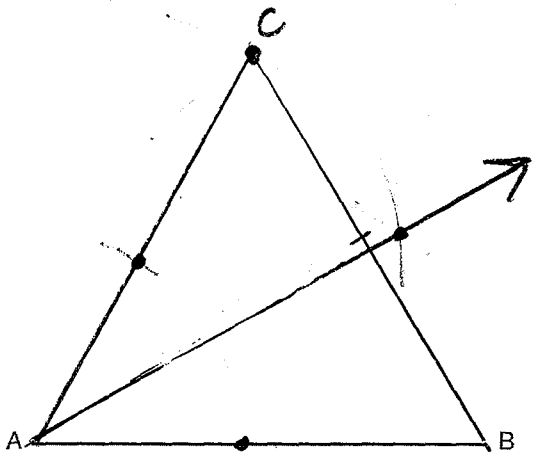
3) $\text{m}\angle EBF = \text{m}\angle ABC$

4) $\text{m}\angle DBF = \text{m}\angle EBF$

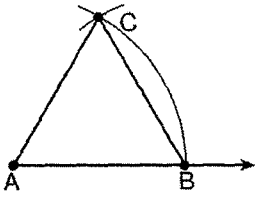
6)Using a compass and straightedge, construct the bisector of $\angle CBA$. [Leave all construction marks.]




7)Using a compass and straightedge, construct an equilateral triangle with $\overline{AB}$ as a side. Using this triangle, construct a 30° angle with its vertex at *A*. [Leave all construction marks.]




8)The diagram below shows the construction of an equilateral triangle.




Which statement justifies this construction?

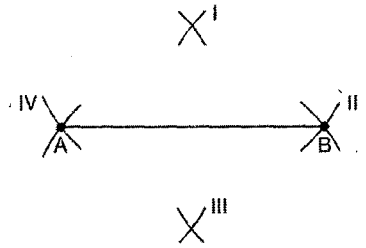
1) $\angle A + \angle B + \angle C = 180$

2) $\mathrm{m}\angle A = \mathrm{m}\angle B = \mathrm{m}\angle C$

3) $AB = AC = BC$

4) $AB + BC > AC$

9)Line segment *AB* is shown in the diagram below.




Which two sets of construction marks, labeled I, II, III, and IV, are part of the construction of the perpendicular bisector of line segment *AB*?

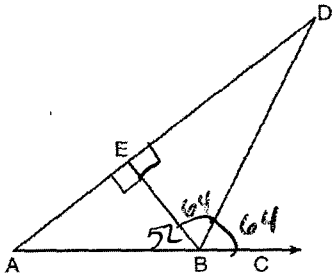
1) I and II
2) I and III
3) II and III
4) II and IV

**Theorems and Vocabulary and Properties (int/ext angle, sum of int angles of triangle, isosceles triangle)**

10)When writing a geometric proof, which angle relationship could be used alone to justify that two angles are congruent?

1) supplementary angles
2) linear pair of angles
3) adjacent angles
4) vertical angles

11)The diagram below shows $\triangle ABD$, with $\overrightarrow{ABC}$, $\overline{BE} \perp \overline{AD}$, and $\angle EBD \cong \angle CBD$. If $m\angle ABE = 52$, what is $m\angle D$?




90
-64
26

1) 26
2) 38
3) 52
4) 64

180
-52
128 ÷ 2 = 64

36 54 90

12)Triangle *PQR* has angles in the ratio of $2:3:5$. Which type of triangle is $\triangle PQR$?

1) acute
2) isosceles
3) obtuse
4) right

$10x = 180$

$x = 18$

13)In $\triangle ABC$, the measure of angle *A* is fifteen less than twice the measure of angle *B*. The measure of angle *C* equals the sum of the measures of angle *A* and angle *B*. Determine the measure of angle *B*.

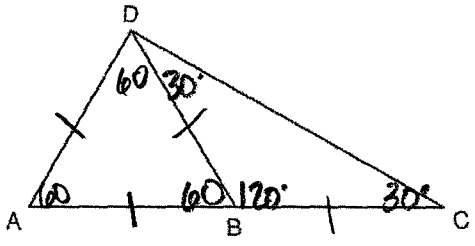
$x + 2x - 15 + (x + 2x - 15) = 180$

$6x - 30 = 180$

$6x = 210$

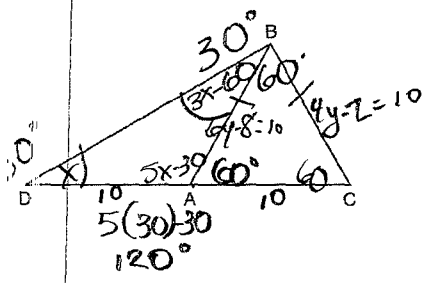
$x = 35 = m\angle B$

14)In the diagram below of $\triangle ACD$, *B* is a point on $\overline{AC}$ such that $\triangle ADB$ is an equilateral triangle, and $\triangle DBC$ is an isosceles triangle with $\overline{DB} \cong \overline{BC}$. Find $m\angle C$. Explain your reasoning.




$m\angle C = 30$

15)In the diagram of $\triangle BCD$ shown below, $\overline{BA}$ is drawn from vertex $B$ to point $A$ on $\overline{DC}$, such that $\overline{BC} \cong \overline{BA}$.




In $\triangle DAB$, $m\angle D = x$, $m\angle DAB = 5x - 30$, and $m\angle DBA = 3x - 60$. In $\triangle ABC$, $AB = 6y - 8$ and $BC = 4y - 2$. [Only algebraic solutions can receive full credit.] Find $m\angle$ Find $m\angle BAC$. Find the length of $\overline{BC}$. Find the length of $\overline{DC}$.

$9x - 90 = 180$

$9x = 270$

$x = 30$

$m\angle D = 30°$

$m\angle BAC = 60°$

$6y - 8 = 4y - 2$

$-4y + 8 \quad -4y + 8$

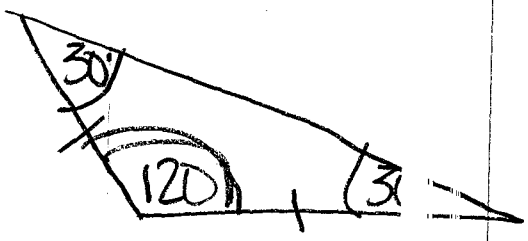
$2y = 6$

$y = 3$

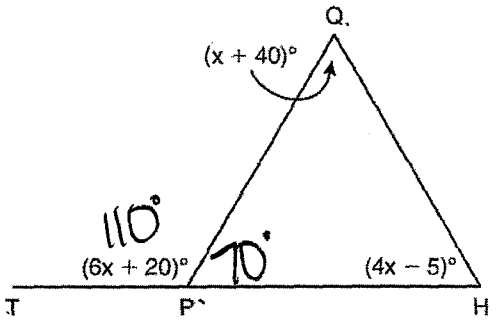
$BC = 4(3) - 2 = 10$

$DC = 20$

16) Hersch says if a triangle is an obtuse t ngle, then it cannot also be an isosceles triangle. Using a diagram, show that Hersch is incorrect, and indicate the mea res of all the angles to justify your answer.



17)In the diagram below of $\triangle HQP$, side $\overline{HP}$ is extended through $P$ to $T$, $m\angle QPT = 6x + 20$, $m\angle HQP = x + 40$, and $m\angle PHQ = 4x - 5$. Find $m\angle QPT$.




(Not drawn to scale)

$6x+20 = x+40+4x-5$

$6x+20 = 5x+35$

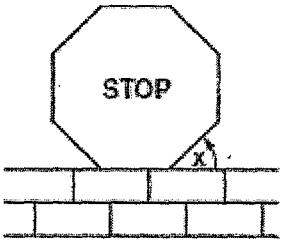
$-5x-20 \quad -5x-20$

$x = 15$

$6(15)+20 = 110°$

$m\angle QPT = 110°$

18)A stop sign in the shape of a regular octagon is resting on a brick wall, as shown in the accompanying diagram.




What is the measure of angle $x$?

1) 45°

2) 60°

3) 120°

4) 135°

$\frac{360}{8} = 45°$

19)The measure of an interior angle of a reg ar polygon is 120°. How many sides does the polygon have?

$\therefore$ ext. $\angle = 60$
(adj supp $\angle$s)

$\frac{360}{60} = \boxed{6}$

20)The sum of the interior angles of a regu polygon is 540°. Determine and state the number of degrees in one interior angle of the polygon.

$\frac{180(n-2)}{180} = \frac{540}{180}$

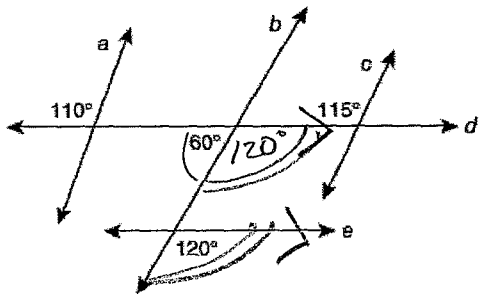
$n-2 = 3$

$n = 5$ sides

$\frac{540}{5} = \boxed{108°}$

**Parallel Lines**

21)Based on the diagram below, which sta ment is true?



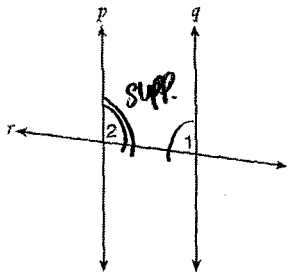

1) $a \parallel b$

2) $a \parallel c$

3) $b \parallel c$

4) $d \parallel e$

22)Lines $p$ and $q$ are intersected by line $r$, as shown below.




If $m\angle 1 = 7x - 36$ and $m\angle 2 = 5x + 12$, for which value of $x$ would $p \parallel q$?

1) 17

2) 24

3) 83

4) 97

$7x - 36 + 5x + 12 = 180$

$12x - 24 = 180$

$+24 \quad +24$

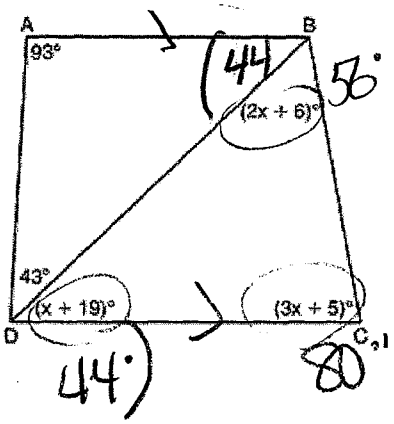
$12x = 204$

$x = 17$

23)

In the diagram below of quadrilateral $ABCD$ with diagonal $\overline{BD}$, $m\angle A = 93$, $m\angle ADB = 43$, $m\angle C = 3x + 5$, $m\angle BDC = x + 19$, and $m\angle DBC = 2x + 6$. Determine if $\overline{AB}$ is parallel to $\overline{DC}$. Explain your reasoning.

$180 - 93 - 43 = 44$



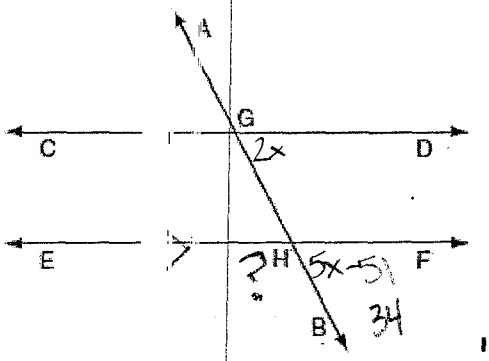

$6x + 30 = 180$

$6x = 150$

$x = 25$

Yes, $\overline{AB} \parallel \overline{DC}$ b/c the alt. int. $\angle$s of $\angle ABD$ + $\angle CDB$ are both = to 44° ($\therefore \cong$)

24) In the accompanying diagram, $\overleftrightarrow{CD}$ $\overleftrightarrow{EF}$, $\overleftrightarrow{AB}$ is a transversal, $m\angle DGH = 2x$, and $m\angle FHB = 5x - 51$. Find the measu in degrees, of $\angle BHE$.




corresponding ∠s

$2x = 5x - 51$

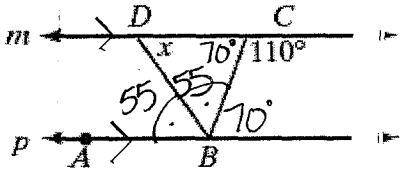
$-5x \quad -5x$

$-3x = -51$

$x = 17$

$m\angle BHE = 180 - 34 = \boxed{146°}$

25) In the figure given, lines $m$ and $p$ ar parallel and $\overline{BD}$ bisects $\angle ABC$. What is the measure f $\angle x$?



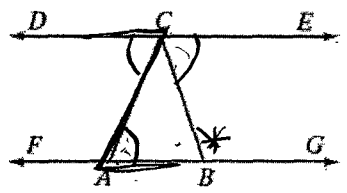

(1) 55°
(2) 60°
(3) 65
(4) 70

26)

*Given:* $\angle CAB \cong \angle DCA$ and $\angle DCA \cong \angle ECB$

*Prove:* a. $\overline{AB} \parallel \overleftrightarrow{DCE}$.

b. $\angle CAB$ is the supplement of $\angle CBG$.

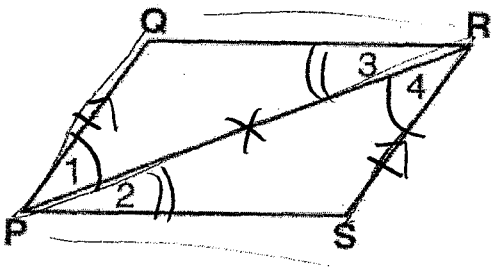



| S | R |
|---|---|
| 1. $\angle CAB \cong \angle DCA$, $\angle DCA \cong \angle ECB$ | 1. given |
| a) 2. $\overline{AB} \parallel \overleftrightarrow{DCE}$ | 2. If 2 lines are cut by a transversal to form $\cong$ alt. int. $\angle$s, the lines are $\parallel$. |
| 3. $\angle ECB$ is a supp. to $\angle CBG$ | 3. $\parallel$ lines cut by a trans. form same-side int. $\angle$s that are supplementary |
| 4. $m\angle ECB + m\angle CBG = 180$ | 4. supp. $\angle$s add to 180° |
| 5. $\angle CAB \cong \angle ECB$ | 5. transitive prop. |
| 6. $m\angle CAB + m\angle CBG = 180°$ | 6. substitution post. |
| 7. $\angle CAB$ is the supp. of $\angle CBG$ | 7. If 2 $\angle$s add to 180°, they are supp. |

27)

Given: $\overline{QP} \parallel \overline{RS}, \overline{QP} \cong \overline{RS}$

Prove: $\overline{QR} \parallel \overline{PS}$




| S | R |
|---|---|
| 1. $\overline{QP} \parallel \overline{RS}$, $\overline{QP} \cong \overline{RS}$ | 1. Given |
| 2. $\angle 1 \cong \angle 4$ | 2. $\parallel$ lines cut by a trans. form $\cong$ alt. int. $\angle$s |
| 3. $\overline{PR} \cong \overline{PR}$ | 3. reflexive prop. |
| 4. $\Delta QPR \cong \Delta SRP$ | 4. SAS $\cong$ SAS |
| 5. $\angle 2 \cong \angle 3$ | 5. CPCTC |
| 6. $\overline{QR} \parallel \overline{PS}$ | 6. If 2 lines cut by a trans. form $\cong$ alt. int. $\angle$s, then they are $\parallel$ |

**Rotations**

28) What is the image of point (8, −4) under the rotation $R_{90°}$ about the origin?

1) (8,4)

2) (4,8)

3) (−4,8)

4) (−4,−8)

↓

(4, 8)

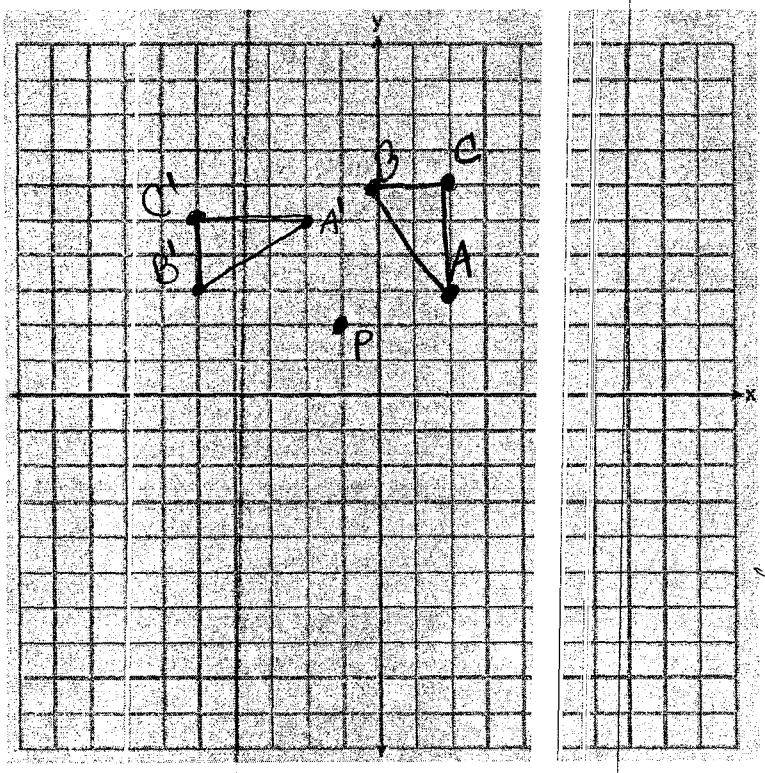
$(x, y) \rightarrow (-y, x)$

29)

Given $\Delta ABC$ with vertices $A$ (2, 3 $B$ (0, 6) and $C$ (2, 6).

*a.* Graph $\Delta ABC$ on the axes provided below.

*b.* Graph and state the coordinates of $\Delta A'B'C'$, the image of $\Delta ABC$ after a rotation of 90° about the point (-1, 2)




$(x, y) \xrightarrow{T_{1,-2}} (x+1, y-2)$

$\xrightarrow{R_{90°}} (-(y-2), x+1)$

$(-y+2, x+1)$

$-1 \quad +2$

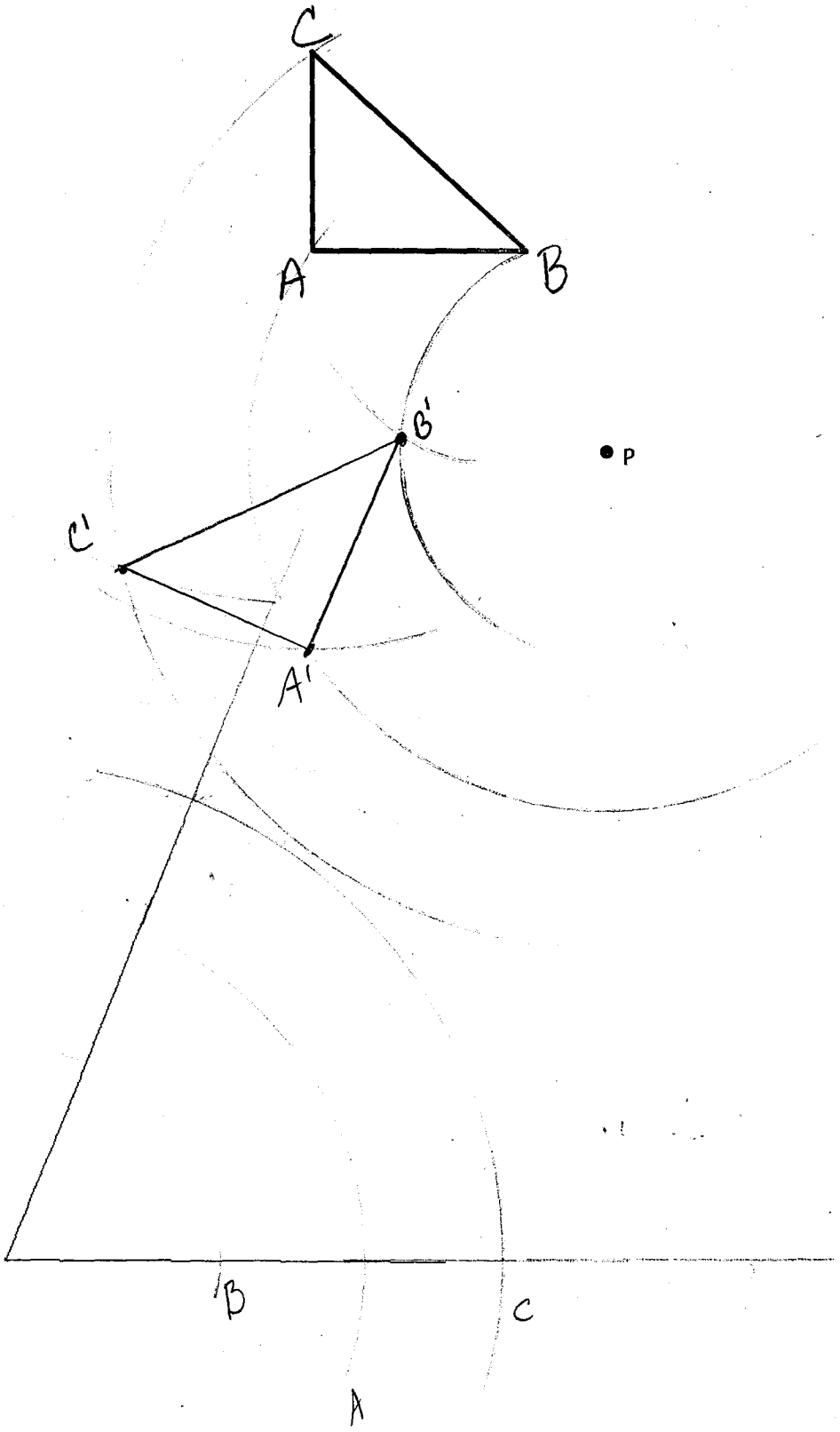
$\xrightarrow{T_{-1,2}} (-y+1, x+3)$

$A': (-3+1, 2+3) = (-2, 5)$

$B': (-6+1, 0+3) = (-5, 3)$

$C': (-6+1, 2+3) = (-5, 5)$

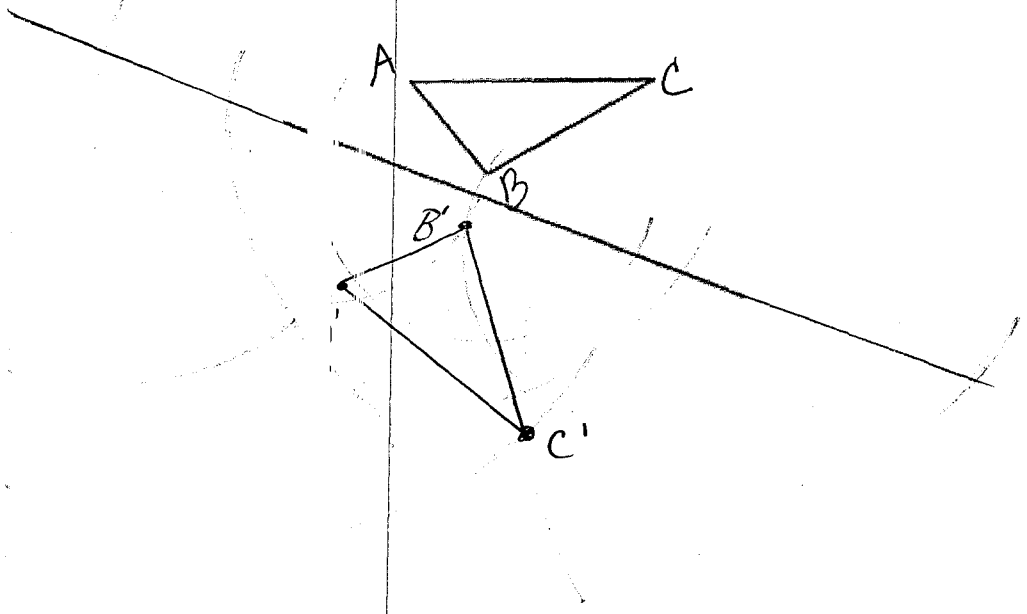
30. Using a compass, rotate the given triangle about point P. Use reference angle below.



**Reflections**

31)

Reflect the given pre-image across the line of reflection provided.




32)What are the coordinates of point *P*, the image of point $(3,-4)$ after a reflection in the line $y = x$?

1) $(3,4)$

2) $(-3,4)$

3) $(4,-3)$

4) $(-4,3)$

Side Note: What would the image be after a reflection in the x-axis? $(3,4)$ y-axis? $(-3,-4)$

**Translations**

33)A translation moves $P(3,5)$ to $P'(6,1)$. What are the coordinates of the image of point $(-3,-5)$ under the same translation?

1) $(0,-9)$

2) $(-5,-3)$

3) $(-6,-1)$

4) $(-5,-9)$

T 3,-4

+ 3,-4

0,-9

34) If the transformation $T_{(x,y)}$ maps point $A(1,-3)$ onto point $A'(-4,8)$, what is the value of $x$?

$T_{-5,11}$

$x = -5$

35)

Point $P$ is on the directed line segment from point $X(-6,-2)$ to point $Y(6,7)$ and divides the segment in the ratio 1:5. What are the coordinates of point $P$?

(1) $(4,5\frac{1}{2})$ (3) $(-4\frac{1}{2},0)$

(2) $(-\frac{1}{2},-4)$ (4) $(-4,-\frac{1}{2})$

$= 6$ total

$\frac{1}{6}$

$X \rightarrow Y$

$T_{12,9}$

$x: \frac{1}{6}(12) = 2$

$y: \frac{1}{6}(9) = \frac{3}{2} = 1.5$

$-6,-2$

$+ 2, 1.5$

$-4, -.5$

**Composition of Transformations**

36) What is the image that results from this composition of transformations?

$r_{x\text{-axis}} \circ R_{0,90°}(-3,0)$

$(-3,0) \rightarrow (0,-3) \rightarrow (0,3)$

37) The coordinates of $\triangle JRB$ are $J(1,-2)$, $R(-3,6)$, and $B(4,5)$. What are the coordinates of the vertices of its image after the transformation $T_{2,-1} \circ r_{y-axis}$?

1) $(3,1),(-1,-7),(6,-6)$

2) $(3,-3),(-1,5),(6,4)$

3) $(1,-3),(5,5),(-2,4)$

4) $(-1,-2),(3,6),(-4,5)$

$J: (1,-2) \rightarrow (-1,-2) \rightarrow (1,-3)$

$R: (-3,6) \rightarrow (3,6) \rightarrow (5,5)$

$B: (4,5) \rightarrow (-4,5) \rightarrow (-2,4)$

**Extra Transformations–**

38)Which transformation is *not* always a rigid motion?

1) rotation

2) dilation

3) reflection

4) translation

39)A transformation of a polygon that always preserves both length and orientation is

1) dilation

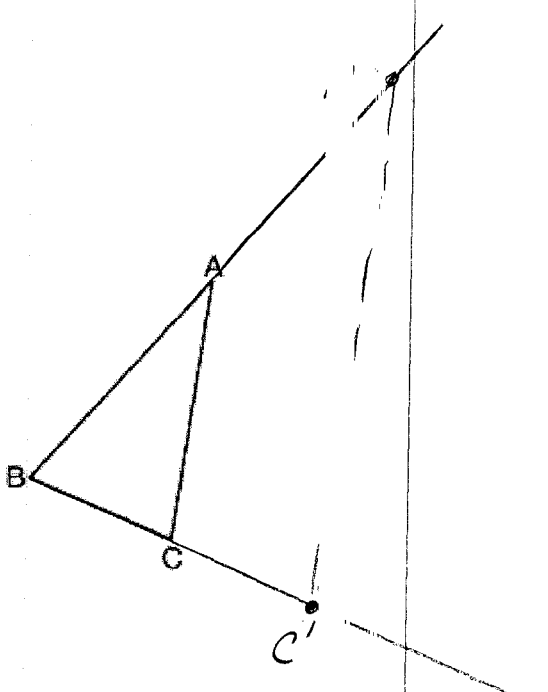
2) translation

3) line reflection

4) None of the above

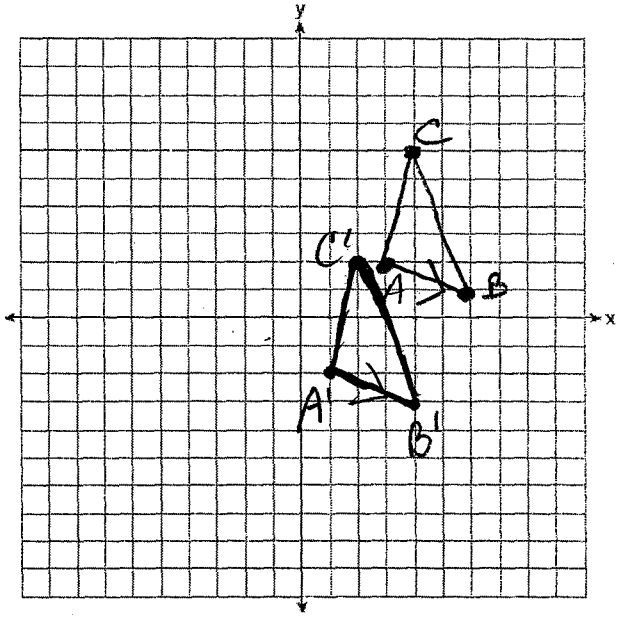
40)

Using a compass and straightedge, construct and label $\triangle A'B'C'$, the image of $\triangle ABC$ after a dilation with a scale factor of 2 and centered at $B$. [Leave all construction marks.]



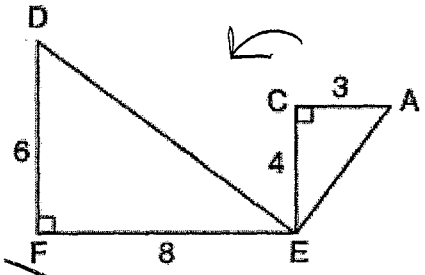
41)The vertices of $\triangle ABC$ are $A(3,2)$, $B(6,1)$, and $C(4,6)$. Identify and graph a transformation of $\triangle ABC$ such that its image, $\triangle A'B'C'$, results in $\overline{AB} \parallel \overline{A'B'}$.

T-2,4




42)

Given: $\triangle AEC$, $\triangle DEF$, and $\overline{FE} \perp \overline{CE}$




similar (after mid-term)

What is a correct sequence of similarity transformations that shows $\triangle AEC \sim \triangle DEF$?

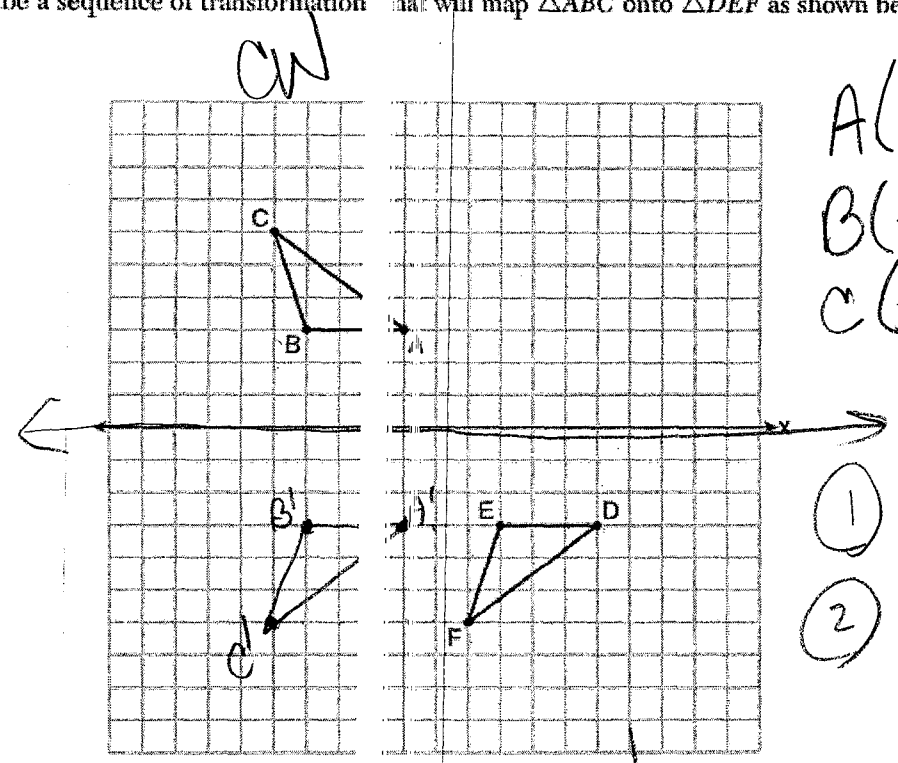
(1) a rotation of 180 degrees about point $E$ followed by a horizontal translation

(2) a counterclockwise rotation of 90 degrees about point $E$ followed by a horizontal translation

(3) a rotation of 180 degrees about point $E$ followed by a dilation with a scale factor of 2 centered at point $E$

(4) a counterclockwise rotation of 90 degrees about point $E$ followed by a dilation with a scale factor of 2 centered at point $E$

43) Describe a sequence of transformation hat will map $\triangle ABC$ onto $\triangle DEF$ as shown below.

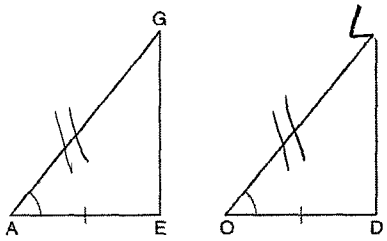



A(1,3) → D(7,-3)
B(-2,3) → E(4,-3)
C(-3,6) → F(3,-6)

① r x-axis
② $T_{6,0}$

**Triangle Congruence**

44) In the diagram below of $\triangle AGE$ and $\triangle$ $LD$, $\angle GAE \cong \angle LOD$, and $\overline{AE} \cong \overline{OD}$.




To prove that $\triangle AGE$ and $\triangle OLD$ are con uent by SAS, what other information is needed?

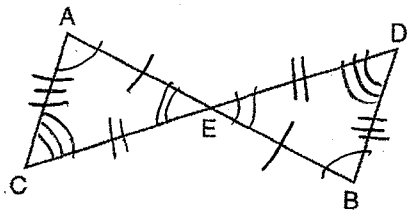
1) $\overline{GE} \cong \overline{LD}$

2) $\overline{AG} \cong \overline{OL}$

3) $\angle AGE \cong \angle OLD$

4) $\angle AEG \cong \angle ODL$

45)In the diagram below, $\Delta AEC \cong \Delta BED$.




Which statement is *not* always true?

1) $\overline{AC} \cong \overline{BD}$ ✓

2) $\overline{CE} \cong \overline{DE}$ ✓

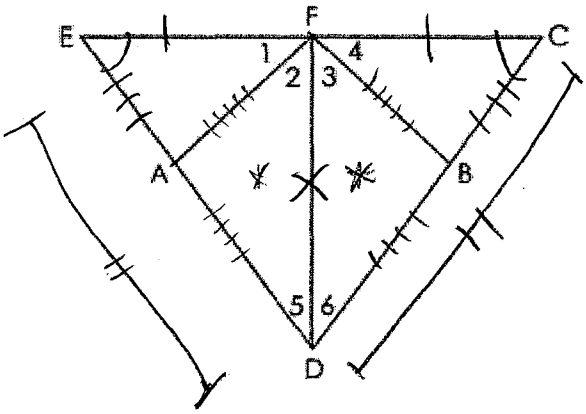
3) $\angle EAC \cong \angle EBD$ ✓

4) $\angle ACE \cong \angle DBE$ ✗

46)

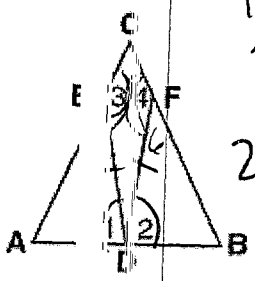
**Given:** $\overline{EF} \cong \overline{CF}$
$\overline{ED} \cong \overline{CD}$
$\overline{EA} \cong \overline{CB}$

**Prove:** $\triangle AFD \cong \triangle BFD$




| S | R |
|---|---|
| 1. $\overline{EF} \cong \overline{CF}$, $\overline{ED} \cong \overline{CD}$, $\overline{EA} \cong \overline{CB}$ | 1. Given |
| 2. $\angle E \cong \angle C$ | 2. If 2 sides of a $\triangle$ are $\cong$, the opp. $\angle$s are $\cong$ |
| 3. $\triangle FEA \cong \triangle FCB$ | 3. SAS $\cong$ SAS |
| 4. $\overline{AF} \cong \overline{BF}$ | 4. CPCTC |
| 5. $\overline{FD} \cong \overline{FD}$ | 5. reflexive prop. |
| 6. $\overline{EA} + \overline{AD} \cong \overline{ED}$ <br> $\overline{CB} + \overline{BD} \cong \overline{CD}$ | 6. partition post. |
| 7. $\overline{EA} + \overline{AD} \cong \overline{CB} + \overline{BD}$ <br> $-\overline{EA} \quad -\overline{CB}$ | 7. substitution post. |
| 8. $\overline{AD} \cong \overline{BD}$ | 8. subtraction post. |
| 9. $\triangle AFD \cong \triangle BFD$ | 9. SSS $\cong$ SSS |

47)



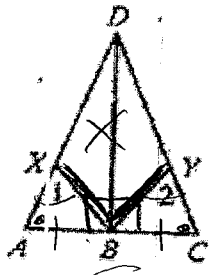

Given: $\angle 1 \cong \angle 2$
$DE = DF$
$\angle 3 \cong \angle 4$

Prove: $\triangle ABC$ is isosceles

| S | R |
|---|---|
| 1. $\angle 1 \cong \angle 2$, $DE = DF$, $\angle 3 \cong \angle 4$ | 1. Given |
| 2. $\angle 3 + \angle 5$ and $\angle 4 + \angle 6$ are linear pairs | 2. 2 adjacent $\angle$s on a straight line form a linear pair |
| 3. $\angle 3 + \angle 5$ and $\angle 4 + \angle 6$ are supplementary | 3. If 2 $\angle$s form a linear pair, they are supp. |
| 4. $m\angle 3 + m\angle 5 = 180$, $m\angle 4 + m\angle 6 = 180$ | 4. If 2 $\angle$s are supp., their sum is 180° |
| 5. $m\angle 3 + m\angle 5 = m\angle 4 + m\angle 6$, $-m\angle 3$, $-m\angle 4$ | 5. substitution post. |
| 6. $m\angle 5 = m\angle 6$ | 6. subtraction post. |
| 7. $\triangle AED \cong \triangle BFD$ | 7. ASA $\cong$ ASA |
| 8. $\angle A \cong \angle B$ | 8. CPCTC |
| 9. $\overline{AC} \cong \overline{BC}$ | 9. If 2 $\angle$s of a $\triangle$ are $\cong$, the opp. sides are $\cong$ |
| 10. $\triangle ABC$ is isosceles | 10. a $\triangle$ w/ 2 $\cong$ sides is isosceles |

48)

Given: $\overline{DB} \perp \overline{AC}$; $\overline{AB} \cong \overline{CB}$; $\angle 1 \cong \angle$
Prove: $\overline{XB} \cong \overline{YB}$




| S | R |
|---|---|
| 1. $\overline{DB} \perp \overline{AC}$, $\overline{AB} \cong \overline{CB}$, $\angle 1 \cong \angle 2$ | 1. Given |
| 2. $\angle DBA$ + $\angle DBC$ are right $\angle$s | 2. $\perp$ lines form $\angle$s |
| 3. $\triangle DBA \cong \angle DBC$ | 3. all rt. $\angle$s are $\cong$ |
| 4. $\overline{DB} \cong \overline{DB}$ | 4. Reflexive prop. |
| 5. $\triangle DBA \cong \triangle DBC$ | 5. SAS $\cong$ SAS |
| 6. $\angle A \cong \angle C$ | 6. CPCTC |
| 7. $\triangle XAB \cong \triangle YCB$ | 7. AAS $\cong$ AAS |
| 8. $\overline{XB} \cong \overline{YB}$ | 8. CPCTC |

**Coordinate Geometry**

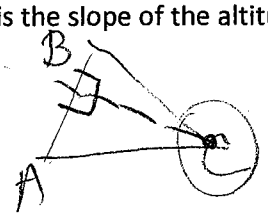
49) The endpoints of $\overline{AB}$ are $A(3,-4)$ and $B(7,2)$. Determine and state the length of $\overline{AB}$ in simplest radical form.

$d(AB) = \sqrt{(7-3)^2 + (2+4)^2}$

$= \sqrt{4^2 + 6^2}$

$= \sqrt{16+36} = \sqrt{52} = \sqrt{4}\sqrt{13} = 2\sqrt{13}$

50) What is the slope of the altitude to side AB; A(-2, 1), B(4, -5), C(2, 6)?




$m(AB) = \frac{-5-1}{4+2} = \frac{-6}{6} = -1$

$m\perp: 1$

51) If a line segment has endpoints $A(3x+5, 3y)$ and $B(x-1, -y)$, what are the coordinates of the midpoint of $\overline{AB}$?

$M = \left(\frac{3x+5+x-1}{2}, \frac{3y+-y}{2}\right) = \left(\frac{4x+4}{2}, \frac{2y}{2}\right)$

$= (2x+2, y)$

52)

If the points (3,5), (4,2) and (5,$k$) lie on a straight line, the value of $k$ is

A) 1 B) -2 C) -1 D) 0

$m_1 = \frac{5-2}{3-4} = \frac{3}{-1}$

$m_2 = \frac{k-2}{5-4} = \frac{k-2}{1}$

$-3 = k-2$

$+2 \quad +2$

$-1 = k$

53)

Which equation represents line that is parallel to the line whose equation is $-2y = 7$?

1) $y = -\frac{3}{2}x + 5$

2) $y = -\frac{2}{3}x + 4$

3) $y = \frac{3}{2}x - 5$

4) $y = \frac{2}{3}x - 4$

$\frac{-2y}{-2} = \frac{-3x+7}{-2}$

$y = \frac{3}{2}x - \frac{7}{2}$

54)

What is the slope of a lin that is perpendicular to the line whose equation i $3x + 5y = 4$?

1) $-\frac{3}{5}$

2) $\frac{3}{5}$

3) $-\frac{5}{3}$

4) $\frac{5}{3}$

$\frac{5y}{5} = \frac{-3x+4}{5}$

$y = -\frac{3}{5}x + \frac{4}{5}$

$m\perp: \frac{5}{3}$

55) Which equation represents the perpendicular bisector of AB whose endpoint are A(8,2) and B(0,6)? Express your answer in slope-intercept form.

$m(AB) = \frac{6-2}{0-8} = \frac{4}{-8} = -\frac{1}{2}$ $\quad m\perp: 2$

$M(AB) = \left(\frac{8+0}{2}, \frac{2+6}{2}\right) = (4,4)$

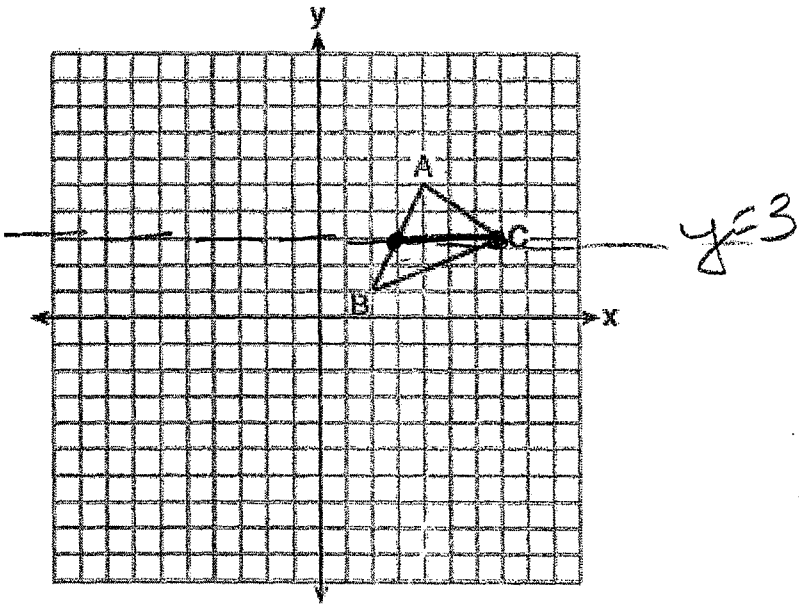
$y - 4 = 2(x-4)$

$y - 4 = 2x - 8$

$y = 2x - 4$

56)

**In the diagram below, $\triangle ABC$ has vertices $A(4,5)$, $B(2,1)$, and $C(7,3)$.**




From C(7,3)

Write the equation of the median to side AB. $M(AB) = (3,3)$ $m = \frac{3-3}{7-3} = \frac{0}{4} = 0$

$y-3 = 0(x-3)$

$y-3=0$ $\boxed{y=3}$

57) A line that passes through the points whose coordinates are (1, 1) and (5, 7) is dilated by a scale factor of 4.

A) Write the equation of the image if the center of dilation is the origin.

$m = \frac{7-1}{5-1} = \frac{6}{4} = \frac{3}{2}$

$(1,1) \rightarrow (4,4)$

$(5,7) \rightarrow (20,28)$

→ not on line

* same slope *

$y-4 = \frac{3}{2}(x-4)$

$y-4 = \frac{3}{2}x-6$

$+4 \quad +4$

$\boxed{y = \frac{3}{2}x-2}$

B) Write the equation of the image if the center of dilation is (5, 7).

$y-1 = \frac{3}{2}(x-1)$

$y-1 = \frac{3}{2}x-\frac{3}{2}$

$+1 \quad +\frac{2}{2}$

on line

∴ same line

$\boxed{y = \frac{3}{2}x-\frac{1}{2}}$