Name Key **Fall Midterm Review Packet**

Directions: Fill in the key term.

1) A midpoint is a point that divides a segment into two congruent segments.

2) An angle bisector is a ray that divides an angle into two congruent angles.

3) A bisector is a line, ray, or segment that divides a segment into two congruent segments.

4) Complementary Angles are two angles whose measure have a sum of 90°.

5) Supplementary Angles are two angles whose measures have a sum of 180°.

6) A linear pair is a pair of adjacent angles whose non-common sides are opposite rays.

7) Congruent angles are angles that have the same measure.

8) Congruent Segments are segments that have the same measure.

9) Perpendicular lines are lines that intersect at 90° angles.

10) A perpendicular bisector is a line that is perpendicular to a segment at the segment's midpoint.

11) A right angle is an angle that measures 90°.

12) Segment Addition Postulate states that if B is between A and C, then AB + BC = AC.

13) Angle Addition Postulate states that if S is in the interior of ∠PQR, then m∠PQS + m∠SQR = m∠PQR.

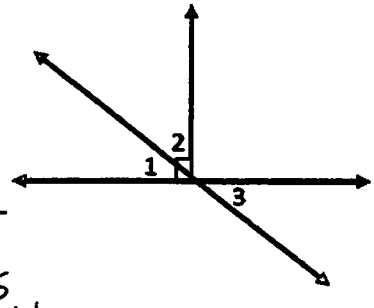
14) Vertical Angles Theorem states vertical angles are congruent.

15) Right L's ≅ Thm states all right angles are congruent.

16) Congruent Supplements Thm states if two angles are supplementary to the same angle, then the two angles are congruent.

Directions: Complete the proof.

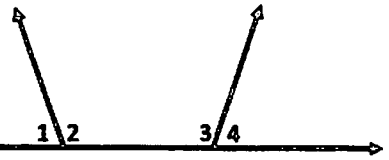
17) Given: ∠1 and ∠2 are complementary.
Prove: ∠2 and ∠3 are complementary.



Statements	Reasons
1) ∠1 & ∠2 are complementary	1) Given
2) m∠1 + m∠2 = 90°	2) def comp ∠'s
3) ∠1 ≅ ∠3	3) vert. ∠'s ≅ thm
4) m∠1 = m∠3	4) def ≅ ∠'s
5) m∠3 + m∠2 = 90°	5) subst. prop.
6) ∠2 & ∠3 are comp.	6) def comp ∠'s

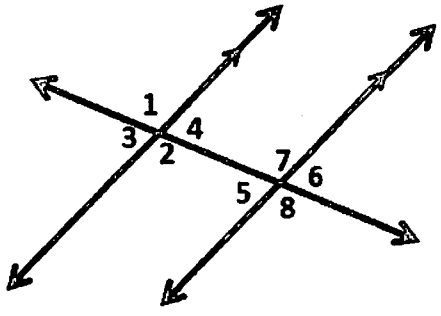
Directions: Complete the proof.

18) Given: ∠1 and ∠3 are supplementary.
Prove ∠1 ≅ ∠4



1) ∠1 & ∠3 are supp.	1) Given
2) ∠3 & ∠4 form lin pr.	2) def. lin pr
3) ∠3 & ∠4 are supp.	3) Lin. Pr. Thm
4) ∠1 ≅ ∠4	4) ≅ Supp Thm

Directions: Name each set of angles using the figure!



19) Corresponding Angles
∠1, ∠7 ∠3, ∠5
∠4, ∠6 ∠2, ∠8

20) Alternate Interior Angles
∠4, ∠5
∠2, ∠7

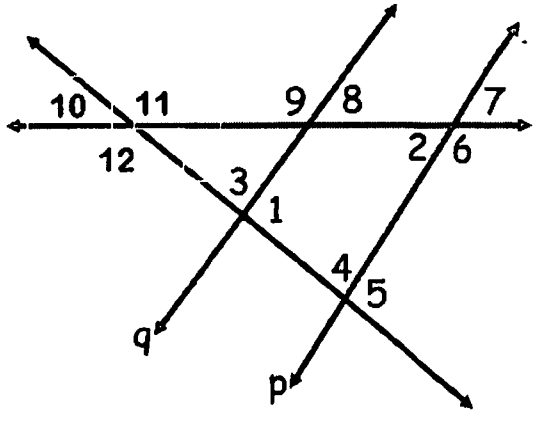
21) Vertical Angles
∠1, ∠2 ∠7, ∠8
∠3, ∠4
∠5, ∠6

22) Supplementary Angles
∠4, ∠7 ∠7, ∠6
∠2, ∠3 etc.

23) Same Side Interior Angles
∠2, ∠5
∠4, ∠7

24) Alternate Exterior Angles
∠3, ∠6
∠1, ∠8

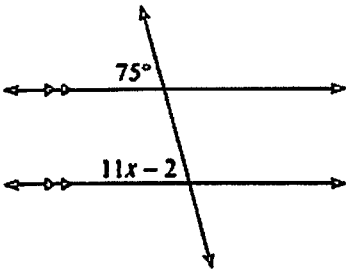
Directions: Given p ∥ q, m∠3 = 45°, and m∠6 = 110°, find the measures of each angle.



25) m∠1 = 135°
26) m∠2 = 70°
27) m∠4 = 45°
28) m∠4 = 45°
29) m∠5 = 135°
30) m∠7 = 70°
31) m∠8 = 70°
32) m∠9 = 110°
33) m∠10 = 65°
34) m∠11 = 115°
35) m∠12 = 115°

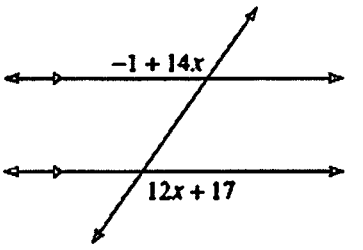
Directions: Solve for x.

36)



x = 7

37)



x = 9

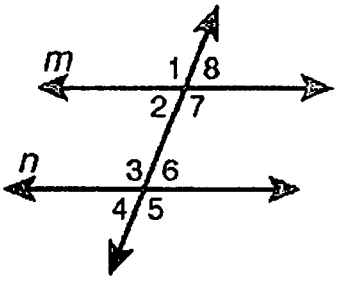
Directions: Determine whether lines m and n must be parallel from the given information. Justify your answer.

38) $\angle 2 \cong \angle 4$

yes; Conv. Corr ∠'s Post

39) $\angle 1 \cong \angle 7$

No; just bc vert ∠'s are ≅, this does not mean we have ∥ lines



40) $m\angle 7 = 92°$ & $m\angle 6 = 88°$

yes; conv. same side int ∠'s thm

Directions: Determine whether the following statements may be concluded from the given figure.

41) Given: $\angle 2 \cong \angle 3$
Statement: $a \parallel b$

No

42) Given: $a \parallel b$
Statement: $a \perp c$

No

43) Given: $a \perp c$ and $b \perp c$
Statement: $a \parallel b$

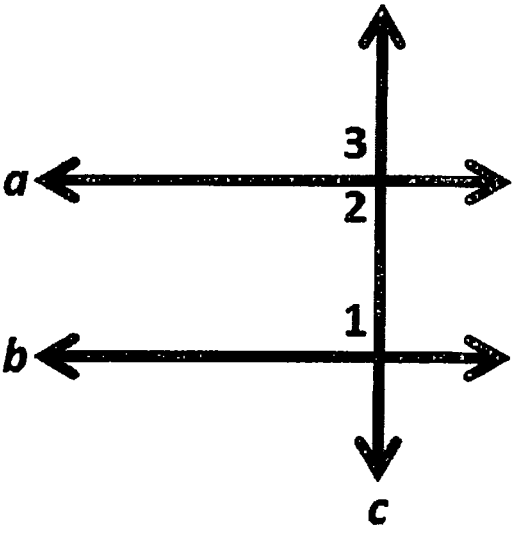
Yes

44) Given: $\angle 2$ and $\angle 1$ are right angles
Statement: $a \parallel b$

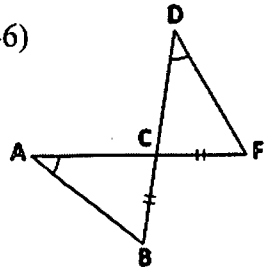
Yes

45) Given: $\angle 2$ and $\angle 1$ are supplementary
Statement: $a \parallel b$

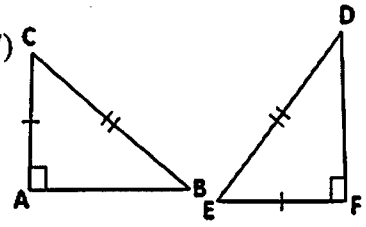
Yes



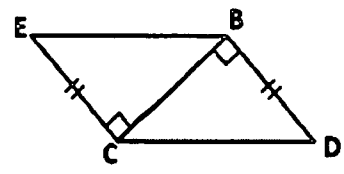
Directions: Determine if the following triangles are congruent by SSS, SAS, ASA, AAS, or HL. Then write a triangle congruence statement.

46) 

AAS ; $\triangle ABC \cong \triangle DFC$

47) 

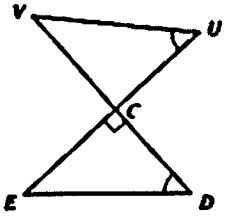
HL ; $\triangle ABC \cong \triangle FDE$

48) 

SAS ; $\triangle ECB \cong \triangle DBC$

Directions: Determine the missing information needed to prove the triangles congruent by the given theorem or postulate.

49) AAS

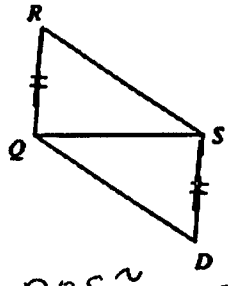


$\overline{VU} \cong \overline{ED}$

or

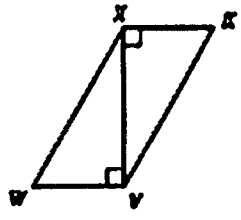
$\overline{VC} \cong \overline{EC}$

50) SAS



$\angle RQS \cong \angle DSQ$

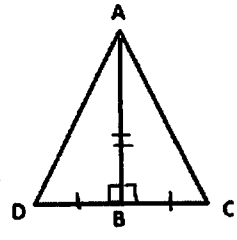
51) ASA



$\angle WXV \cong \angle XVK$

Directions: Complete each proof.

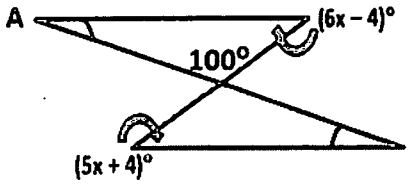
52) Given: B is the midpoint of $\overline{DC}$; $\overline{AB} \perp \overline{CD}$
Prove: $\angle DAB \cong \angle CAB$



Statements	Reasons
1) B is mdpt $\overline{DC}$	1) Given
2) $\overline{DB} \cong \overline{CB}$	2) def mdpt
3) $\overline{AB} \perp \overline{CD}$	3) Given
4) $\angle DBA$ & $\angle CBA$ are rght $\angle$'s	4) $\perp$ lines form 4 rght $\angle$'s
5) $\angle DBA \cong \angle CBA$	5) Right $\angle$'s $\cong$ thm
6) $\overline{AB} \cong \overline{AB}$	6) Ref. Prop.
7) $\triangle DBA \cong \triangle CBA$	7) SAS $\cong$
8) $\angle DAB \cong \angle CAB$	8) CPCTC

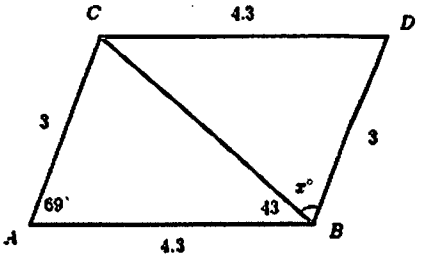
Directions: Find the measure of the angle.

53) m∠A



m∠A = 36°

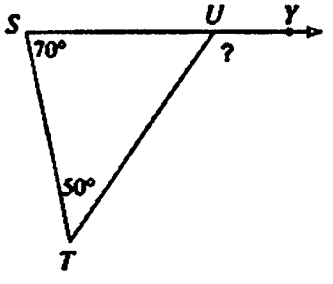
54) m∠CBD



m∠CBD = 68°

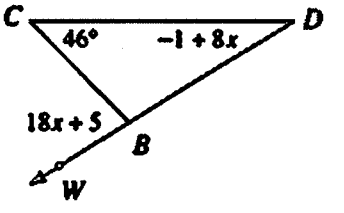
Directions: Find the measure of each indicated angle.

55) m∠TUY



m∠TUY = 120°

56) m∠D



m∠D = 31°

Directions: Solve.

57) Given: ΔABC ≅ ΔFED; AC = 4x; FD = 8x – 20
Find: FD

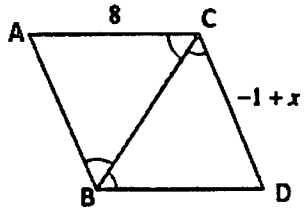
FD = 20

58) Given: ΔABC ≅ ΔFED; m∠A = 5x + 20,
m∠B = 12x; m∠D = –x + 32
Find: m∠E

m∠E = 96°

Directions: Solve.

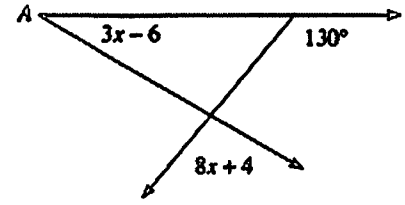
59) What is x? What is AB?



$x = 9$

$AB = 8$

60) What is m∠A?

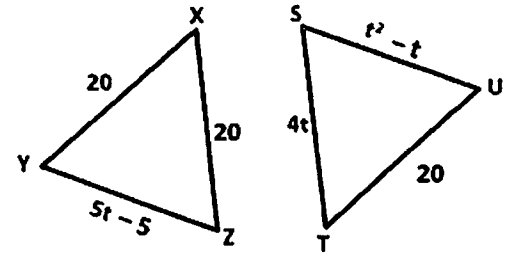


$m\angle A = 30°$

61) In an isosceles triangle, the base angles are 2 times the measure of the vertex angle. What is the measure of each angle in this triangle?

$36°, 72°, 72°$

62) Given: The triangles are congruent.
Are these triangles also equilateral? Justify.



yes; every side measures 20 units

Transformations Review Midterm Addendum Key **Geometry**

Directions: Using the rule provided, describe the transformation that has occurred.

1) $(x, y) \rightarrow (y, x)$ reflect over $y = x$

2) $(x, y) \rightarrow (y, -x)$ 270° CCW rotation

3) $(x, y) \rightarrow (x, y - 3)$ translate down 3 units

4) $(x, y) \rightarrow (-x, y)$ reflect over y-axis

Directions: Write the rule to represent the transformation.

5) Rotate 270° CW about the origin
$(x,y) \rightarrow (-y,x)$

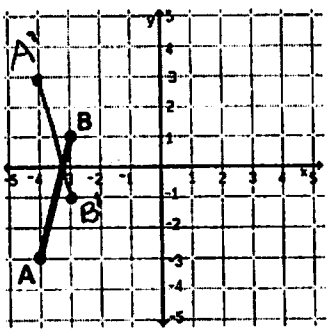
6) Translate 2 units left and 3 units down
$(x,y) \rightarrow (x-2, y-3)$

7) Reflect over $y = -x$
$(x,y) \rightarrow (-y,-x)$

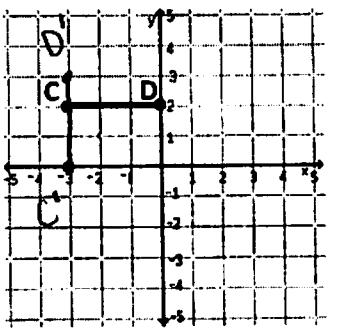
8) Reflect over the y-axis
$(x,y) \rightarrow (-x,y)$

Directions: Graph the transformation using the given information.

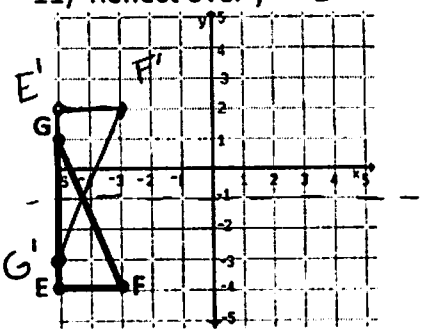
9) $(x, y) \rightarrow (x, -y)$



10) Rotate 270° CW about (–2, 1)



11) Reflect over $y = -1$



Directions: Solve each problem.

12) If Z(3, –4), what is Z″ after it has been reflected over the y-axis and then moved 5 units to the right.
$Z''(2,-4)$

13) If R′(0, 5), what is R if the following rule was used to produce the image: $(x, y) \rightarrow (-y, -x)$?
$R(-5,0)$

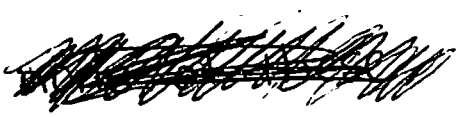
14) If J(3, 1) is reflected over $y = -x$, which other transformation would have the same coordinate as J′?

(A) M(1, 3) is transformed using the rule $(x, y) \rightarrow (-x, -y)$.

B) H(–1, –3) is reflected over the y-axis.

C) W(–1, 3) is rotated 270° CCW about the origin.

D) E(4, –5) is translated 3 units left and 8 units up.



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