GEOMETRY 1st Sem Exam REVIEW – Part 1 Name _____

1. Name the 3 basic elements of geometry and DESCRIBE each:

   1. _____ _____

      _____

   2. _____ _____

      _____

   3. _____ _____

      _____

2. Name each **type** of angle shown:

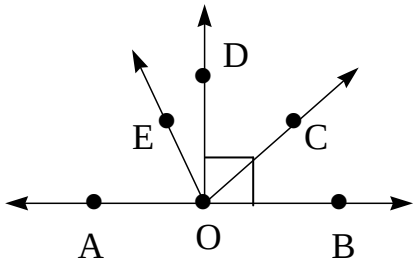
   a. ∠AOB _____

   b. ∠BOC _____

   c. ∠BOD _____

   d. ∠AOE _____

   e. ∠AOC _____



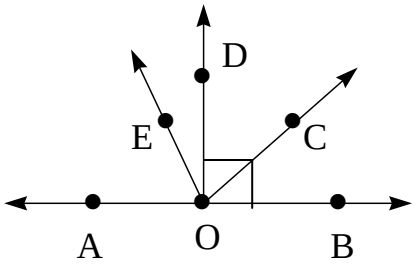
3. Find the measure of the indicated angle:
   Show Computations:

   GIVEN: m∠ BOC = 40
   m ∠ BOE = 120

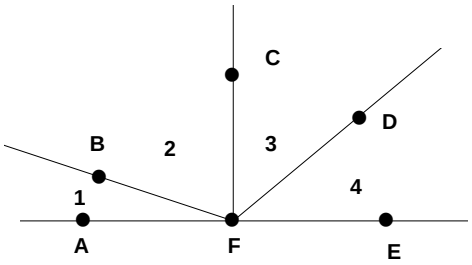
   a. Find ∠ DOC = _____

   b. Find ∠ AOE = _____

   c. Find ∠ AOC = _____



4.



What kind of angle is $\angle$ 4? _____

If m$\angle$ 3 + m$\angle$4 = 90, what kind of angle do $\overrightarrow{FE}$ and $\overrightarrow{FC}$ form? _____

What kind of angle do $\overrightarrow{FA}$ and $\overrightarrow{FE}$ form? _____

If $\angle$3 and $\angle$4 are complementary and m$\angle$ 3 = 30, what is m$\angle$4? _____

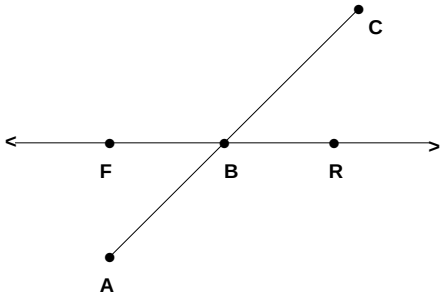
What is the angle supplementary to $\angle$1? _____

m$\angle$ BFE = 110 and m$\angle$DFE = 40, what is m$\angle$DFB? _____

Assume $\overrightarrow{FC}$ bisects $\angle$DFB. If m$\angle$2 = 2x + 10 and m$\angle$3 = 3x - 5, what is the measure of $\angle$2 and $\angle$3? **Show computations**.

m $\angle$ 2 = _____ m $\angle$ 3 = _____

5. $\overline{AC}$ bisects $\overline{FR}$.



If FB = 15, what is FR? _____

If AC = 20, what BC? _____

6. $\overline{RS}$ bisects $\overline{TU}$ at point Q. ___

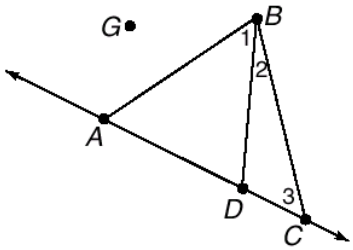
Find the value of x and the measure of QU if

TU = 7x – 5 and

TQ = –5x + 6

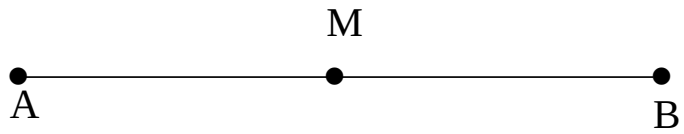
Value of x: _____ **QU =** _____

7. Find the value of *x* and *m*$\angle$*ABD* if *m*$\angle$*ABC* = 71, *m*$\angle$ *DBC* = 2*x* – 3, and *m*$\angle$ *ABD* = 3*x* + 4.



x = _____ **m $\angle$ABD =** _____

8. Given: M is the midpoint of $\overline{AB}$.



Find the *missing* measure – read the letters *carefully* (**show computations)**:

a. If A = 3 and B = 11 **M** = _____

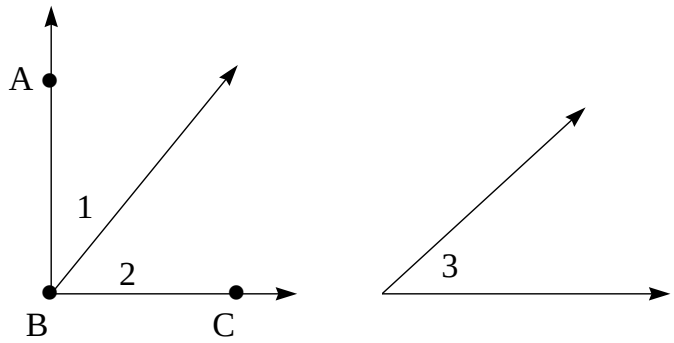
b. If A = – 4 and B = 8 **M** = _____

c. If A = –7 and M = – 3 **B** = _____

9. Given: $\overline{AB} \perp \overline{BC}$

$\angle 2 \cong \angle 3$

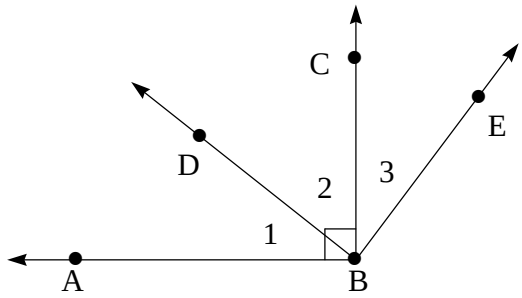
Prove: m∠1 + m∠3 = 90



Statement	Reason

10. Given: $\overrightarrow{BC}$ bisects ∠DBE

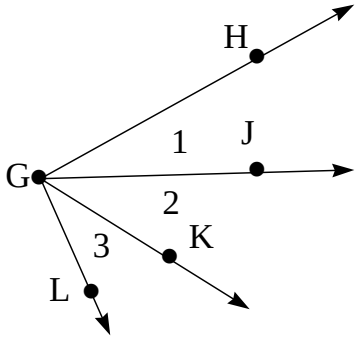
Prove: m∠1 + m∠3 = 90



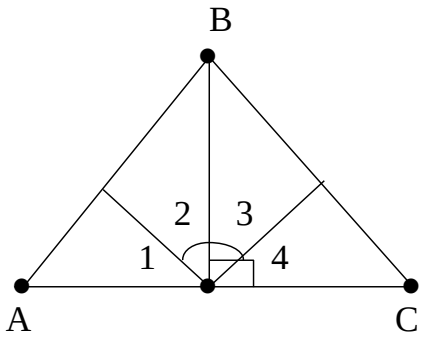
Statement	Reason

11. Given: m∠HGK = m∠JGL

Prove: m∠1 = m∠3

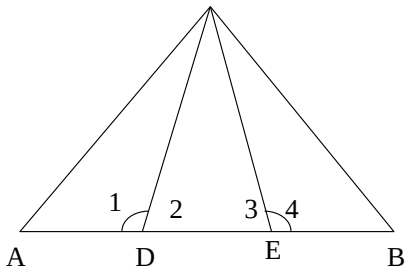


12. Prove: m∠1 = m∠4



13. Given: $\angle 1 \cong \angle 4$

Prove: $\angle 2 \cong \angle 3$

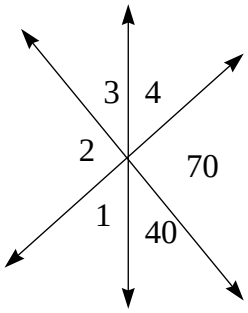


14. m∠1 = _____

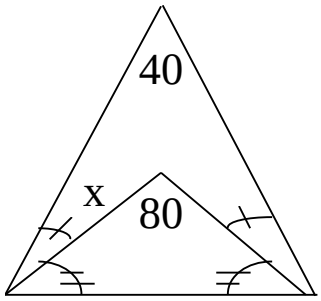
m∠2 = _____

m∠3 = _____

m∠4 = _____



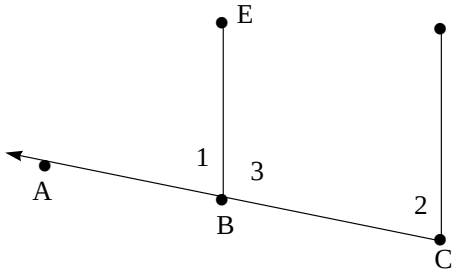
15. Find x _____



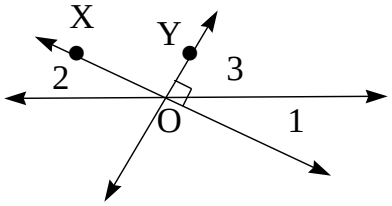
16. Use the 1) **Congruent Supplements Theorem** or the 2) **Congruent Complements Theorem** in the proof below.

a. Given: $\angle 3$ is a supplement of $\angle 2$

Prove: $\angle 2 \cong \angle 1$



17. Prove: $\angle 2 + \angle 3 = 90$



18. Describe the DIFFERENCE between INDUCTIVE and DEDUCTIVE Reasoning:

19. Of the *Converse*, *Inverse*, and *Contrapositive*, which, if any, will *always* be True when the related "If-Then" is True?

20. Assume there are two lines, m and n. Describe 7 different ways you can prove m and n are parallel to each other.

Each statement should complete the sentence beginning "If (insert description), " and ending "then lines m and n are parallel."

1. If _____,

   then lines m and n are parallel

2. If _____,

   then lines m and n are parallel

3. If _____,

   then lines m and n are parallel

4. If _____,

   then lines m and n are parallel

5. If _____,

   then lines m and n are parallel

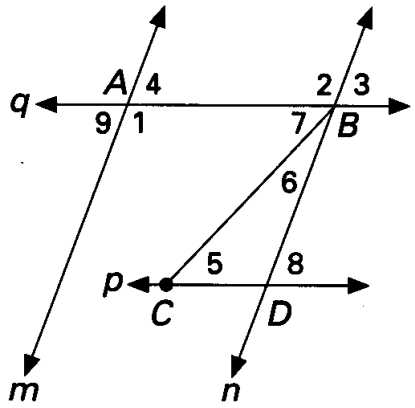
6. If _____,

   then lines m and n are parallel

7. If _____,

   then lines m and n are parallel

Determine which lines are parallel.
GIVE a REASON.



21. m∠1 = 105, m∠2 = 105

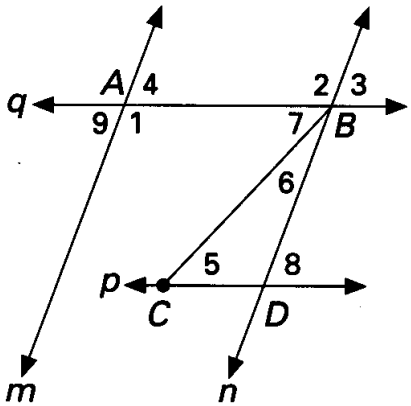
    Lines parallel: _____
    REASON: _____

22. m∠3 = 80, m∠8 = 80

Lines parallel: _____
REASON: _____

23. Given m || n

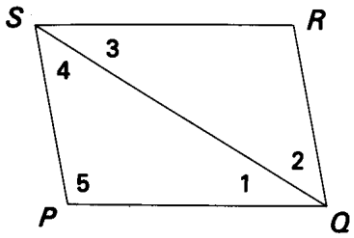
If m∠4 = 65, then m∠2 = _____
REASON: _____



24. Given m || n

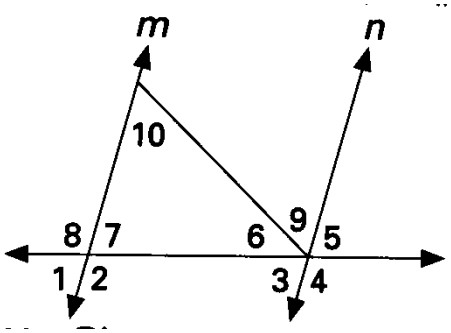
If m∠9 = 70, then m∠3 = _____
REASON: _____

25. Given: $\overline{SP} \parallel \overline{QR}$
Prove: m∠2 + m∠3 = m∠PSR



26. Given: m || n
m∠1 = 70

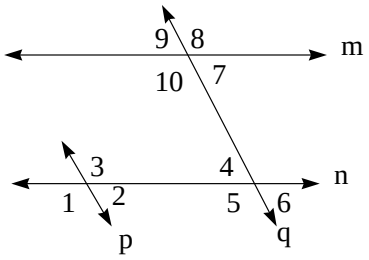
Find: m∠3 _____



27. Given: m || n
m∠10 = 3x + 30
m∠9 = x + 40

Find: m∠9 _____

Use this figure for questions 28 through 32.



Show **ALL** computations and state **ALL** supporting postulates/theorems for your answers.

For questions 28 through 32, determine which lines are parallel in each separate case.

			Parallel Lines		Supporting reason(s)
28.	m∠6 = 80	m∠7 = 80	_____	_____	_____
29.	m∠3 =	m∠5	_____	_____	_____
30.	m∠4 = 60	m∠10 = 120	_____	_____	_____
31.	m∠4 = 55	m∠7 = 55	_____	_____	_____
32.	∠1 ≅	∠5	_____	_____	_____

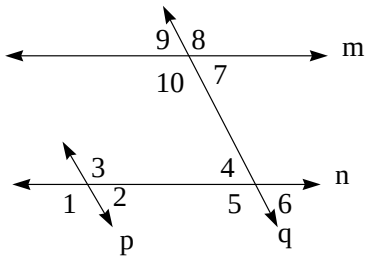
Provide the missing measurement and supporting reason or computation.

33. Given: m || n
m∠6 = 55 m∠7 = _____ Reason/Computation:_____

_____

34. Given: p || q
m∠2 = 80 m∠5 = _____ Reason/Computation:_____

_____



35. Given: p || q
m∠3 = 110 m∠5 = _____ Reason/Computation:_____

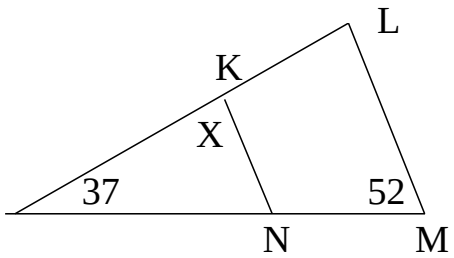
_____

36. Given: m || n
m∠5 = 120 m∠8 = _____ Reason/Computation:_____

_____

37. Given: $\overline{KN}$ || $\overline{LM}$

Find x: _____



GEOMETRY 1ST SEM EXAM REVIEW - PART 1

ANSWERS & HINTS

1. See Class Notes

2 a. Straight
b. Acute
c. Right
d. Acute
e. Obtuse

3 a. 50 (90-40)
b. 60 (180-120)
c. 140 (90+50)

4. Acute
Right
Straight
60
LBFE
70
mL2 = 40 mL3 = 40 x = 15

5. FR = 30
BC = UNKNOWN

6. $x = 1$ $QU = 1$

7. $x = 14$ $m\angle ABD = 46$

8. a. $m = 7$
b. $m = 2$
c. $B = 1$ $\left(\frac{-7+B}{2} = -3\right)$

9.

$\overline{AB} \perp \overline{BC}$	Given
$\angle 2 \cong \angle 3$	Given
$m\angle 1 + m\angle 2 = 90$	$\perp$ Theorem
$m\angle 1 + m\angle 3 = 90$	Substitution

10.

$\overrightarrow{BC}$ bisects $\angle DBE$	Given
$m\angle 2 = m\angle 3$	Defn of $\angle$ Bis
$m\angle 1 + m\angle 2 = 90$	Defn of Right $\angle$
$m\angle 1 + m\angle 3 = 90$	Substitution

11.

$m\angle HGK = m\angle JGL$	Given
$m\angle 1 + m\angle 2 = m\angle HGK$	Angle Addn Post.
$m\angle 2 + m\angle 3 = m\angle JGL$	Angle Addn Post.
$m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3$	Substitution
$-m\angle 2 \quad -m\angle 2$	
$m\angle 1 = m\angle 3$	Algebra

12.

$m\angle 2 = m\angle 3$	Given
$m\angle BOC = 90$	Given
$m\angle 3 + m\angle 4 = 90$	Angle Addn Post
$m\angle 1 + m\angle 2 = 90$	$\perp$ Theorem
$m\angle 1 + m\angle 3 = 90$	Substitution
$m\angle 3 + m\angle 4 = m\angle 1 + m\angle 3$	Substitution
$-m\angle 3 \quad -m\angle 3$	
$m\angle 4 = m\angle 1$	Algebra

13.

$\angle 1 \cong \angle 4$	Given
$m\angle 1 + m\angle 2 = 180$	Linear Pair
$m\angle 3 + m\angle 4 = 180$	Linear Pair
$m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	Substitution
$m\angle 1 + m\angle 2 = m\angle 3 + m\angle 1$	Substitution
$-m\angle 1 \quad -m\angle 1$	
$m\angle 2 = m\angle 3$	Algebra
$\angle 2 \cong \angle 3$	$\cong \angle$ Theorem

14. $m\angle 1$ 60 $m\angle 3$ 40
$m\angle 2$ 70 $m\angle 4$ 60

15. $x = 20$

16.

$\angle 3$ is supp of $\angle 2$	Given
$\angle 3$ is supp of $\angle 1$	Linear Pair
$\angle 2 \cong \angle 1$	$\cong$ Supp. Theorem

17.

$\angle YOZ$ is Right $\angle$	Given
$m\angle 3 + m\angle 1 = m\angle YOZ$	Angle Addn Post
$m\angle 3 + m\angle 1 = 90$	Defn of Right $\angle$
$m\angle 2 = m\angle 3$	Vertical $\angle$
$m\angle 3 + m\angle 2 = 90$	Substitution

18. Inductive Reasoning reasons from specific to general.
Deductive Reasoning reasons from general to specific.

19. Contrapositive

20. See class notes

21. $m \parallel n$ (Alt Interior $\angle$'s)

22. $q \parallel p$ (Corresponding $\angle$'s)

23. $m\angle 2 = 115$ (Same Side Interior $\angle$'s are Supplementary)

24. $m\angle 3 = 70$ (Alt. Exterior $\angle$'s)

25.

$\overline{SP} \parallel \overline{QR}$	Given
$m\angle 4 + m\angle 3 = m\angle PSR$	Angle Addition Postulate
$m\angle 4 = m\angle 2$	Alternate Interior $\angle$'s
$m\angle 2 + m\angle 3 = m\angle PSR$	Substitution

26. $m\angle 3 = 70$

27. $m\angle 9 = 45$

28. $m \parallel n$ Corresponding $\angle$'s are $\cong$

29. $p \parallel q$ Alternate Interior $\angle$'s are $\cong$

30. $m \parallel n$ Same Side Interior $\angle$'s are Supplementary

31. $m \parallel n$ Alternate Interior $\angle$'s are $\cong$

32. $p \parallel q$ Corresponding $\angle$'s are $\cong$

33. $m\angle 7 = 55$ Corresponding $\angle$'s

34. $m\angle 5 = 100$ Same Side Interior $\angle$'s are Supplementary

35. $m\angle 5 = 110$ Alternate Interior $\angle$'s are $\cong$

36. $m\angle 8 = 120$ Alternate Exterior $\angle$'s are $\cong$

37. $x = 91$