Directions: Match the vocabulary term to the definition or symbolic form.

B 1) Line

G 2) Line Segment

F 3) Ray

E 4) Straight Angle

C 5) Supplementary Angles

H 6) Linear Pair

A 7) Complementary Angles

D 8) Congruent Angles

~~a)~~ Two angles whose sum is 90^o

~~b)~~ $\overleftrightarrow{XY}$

~~c)~~ $m\angle A + m\angle B = 180^o$

~~d)~~ Two angles whose measures is the same

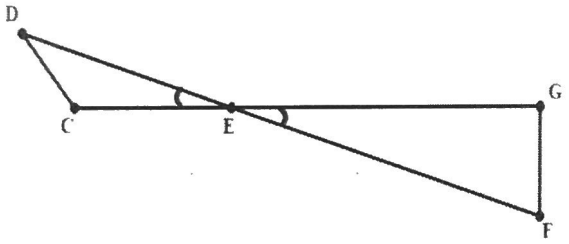
~~e)~~ An angle whose measure is 180^o

~~f)~~ $\overrightarrow{MN}$

~~g)~~ Part of a ray or line with two endpoints

~~h)~~ Two angles whose nonadjacent sides form opposite rays

Directions: Use the picture below to determine if you are allowed to assume each statement. Write a YES or a NO as your answer.



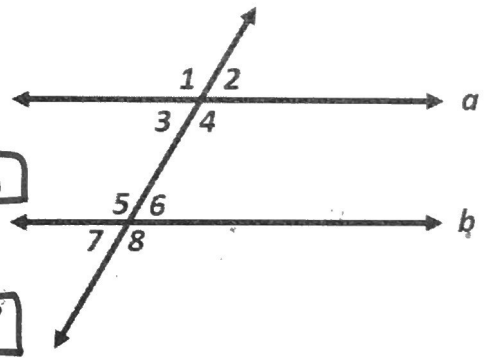
YES 9) Points D, E, & F are collinear (on same line)

YES 10) $\angle DEC \cong \angle GEF$ (vertical ∠'s are ≅)

NO 11) ΔGEF is a right triangle (can't assume right ∠'s)

YES 12) E is between C and G

Directions: In the figure, a∥b. Answer each question.



13) If $m\angle 1 = (2x + 25)^o$ & $m\angle 5 = (3x - 37)^o$, what is $m\angle 3$?

*∠1 & ∠5 are corresponding ∠'s, so they are ≅.

$2x+25 = 3x-37$ (+37, +37) → $2x + 62 = 3x$ → $x = 62$

$m\angle 1 = 149$, so $m\angle 3 = 180 - 149 =$ **31**

14) If $m\angle 6 = (6x^2)^o$ and $m\angle 4 = (14x^2)^o$, what is $m\angle 4$?

*∠6 & ∠4 are Same Side Int ∠'s, so they are Supp.

$6x^2 + 14x^2 = 180$

$20x^2 = 180$

$\frac{20x^2}{20} = \frac{180}{20}$ $x^2 = 9$ **$x = 3$**

$m\angle 4 = 126^\circ$

15) If $m\angle 4 = (-x + 60)^o$ & $m\angle 5 = (x^2 + x - 20)^o$, what is $m\angle 6$?

*∠4 & ∠5 are alt. int ∠'s, so they are ≅.

$-x+60 = x^2+x-20$ (+x, -60; +x, -60)

$x^2+2x-80$

$10 \cdot -8 = -80$, $10 + -8 = 2$ → $(x+10)(x-8)$ → $x = -10$ **$x = 8$**

$m\angle 4 = 52^\circ$, so $m\angle 6 = 180 - 52 =$ **128°**

16) What is the angle relationship between ∠1 & ∠2?

Linear Pair

17) What is the angle relationship between ∠7 & ∠2?

Alt. Ext ∠'s.

18) What is the angle relationship between ∠5 & ∠8?

Vertical Angles

19) What is the angle relationship between ∠3 & ∠5?

Same Side Interior

Directions: Use the conditional statement "If two segments intersect at a 90° angle, then the segments are perpendicular." to find the converse, inverse, and contrapositive. Then find the truth value of each statement and write a biconditional statement if appropriate.

20) (T) F Converse: (q→p) If segments are ⊥, then they intersect at a 90° ∠.

21) (T) F Inverse: (~p→~q) If segments do not intersect at a 90° ∠, then the segments are not perpendicular.

22) (T) F Contrapositive: (~q→~p) If segments are not perpendicular, then they do not intersect at a 90° angle.

23) Biconditional: Two segments intersect at a 90° angle IFF the segments are ⊥.

24) What does the triangle sum theorem state?

All 3 angles of a triangle add to equal 180°

25) What does the alternate interior angles theorem state?

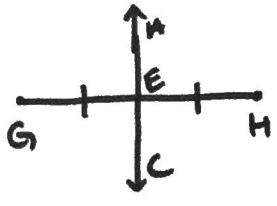
That alternate interior angles are ≅.

26) What does the consecutive (same-side) exterior angles theorem state?

That same side interior angles are supplementary.

Draw a diagram the illustrates the following statements. Be sure to include the appropriate mathematical symbols and markings (i.e. right angles have a box symbol the corner).

27) $\overleftrightarrow{AC}$ *bisects* $\overline{GH}$

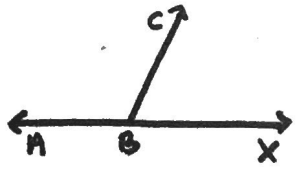


What statement can you make about your diagram using the definition of segment bisector?

state → $\overline{GE} \cong \overline{EH}$ by

reas → Def. of bisector

28) $\angle ABC$ *and* $\angle CBX$ *form a linear pair*



What statement can you make about your diagram using the definition of linear pair?

state ↙

∠ABC & ∠CBX are supp. by def of Linear pair.

Reason ↗

29) *A is the midpoint of* $\overline{MN}$

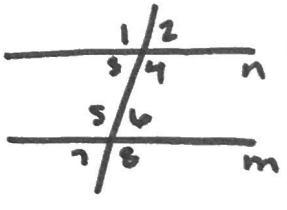
What statement can you make about your diagram using the definition of midpoint?

state

$\overline{MA} \cong \overline{AN}$ ↙ by def. of midpoint ↰ reason

30) $n \parallel m$ *and are cut by a transversal*

*label the angles you just created with numbers 1-8



What statement can you make about your diagram using corresponding angles theorem?

statement ↙

∠1 ≅ ∠5 ↖ by corresponding ∠'s theorem ↖ Reason

*there are other possible answers