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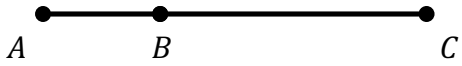
Midterm Exam practice problems
Constructions

1. Construct a perpendicular bisector of $\overline{BC}$ using a compass and straight edge. (3 points)



2. Construct an equilateral triangle with sides congruent to the given line segment below. (3 points)

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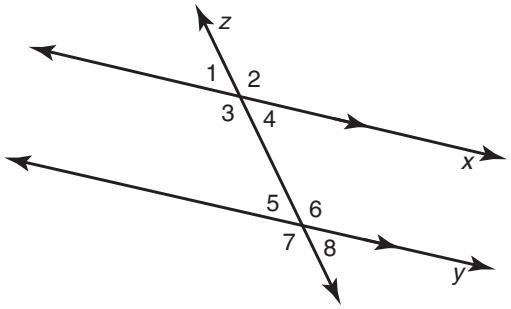
3. The measure of angle T is 50°.
a. What is the measure of an angle that is complementary to angle T? (1 point)

b. What is the measure of an angle that is supplementary to angle T? (1 point)

4. True or false: If M is the midpoint of $\overline{AB}$, then $AM > MB$.

5. In the figure, line x is parallel to line y and $m\angle 1 = 40$. Determine the measure of angle 7. (1 point)



6. Sketch and label each of the following geometric figures.
a. Adjacent, supplementary angles $\angle ABC$ and $\angle CBD$. (1 point)

b. Two intersecting lines with vertical angles 1 and 2 and vertical angles 3 and 4. (1 point)

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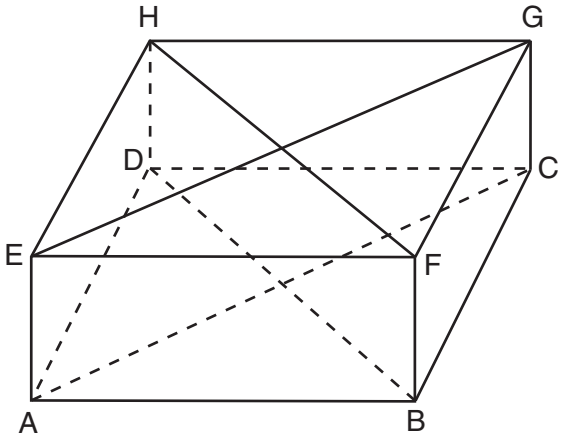
7. Write the letter of the description in front of each term. (1 point each)

i.	_____	obtuse angle	**a.** two angles whose measures add up to 90°
ii.	_____	complementary angles	**b.** two nonadjacent angles that are formed by two intersecting lines
iii.	_____	adjacent angles	**c.** two angles whose measures add up to 180°
iv.	_____	vertical angles	**d.** an angle whose measure is greater than 90° but less than 180°
v.	_____	supplementary angles	**e.** two angles that share a common vertex and a common side

(*for credit, you must write the correct letters in the blanks*)

8.

A rectangular prism is shown in the diagram below.



True or false: the points *D, E,* and *F* collinear.

9. (1 point)

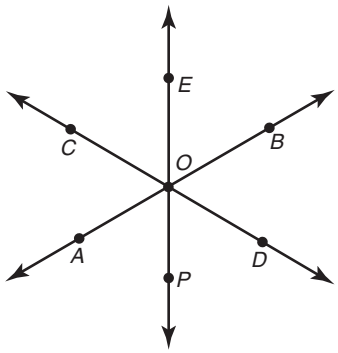
The figure shows intersecting lines. Which choice shows vertical angles?

a. ∠*COE* and ∠*BOD*

b. ∠*COE* and ∠*EOD*

c. ∠*EOB* and ∠*AOP*

d. ∠*AOC* and ∠*COE*



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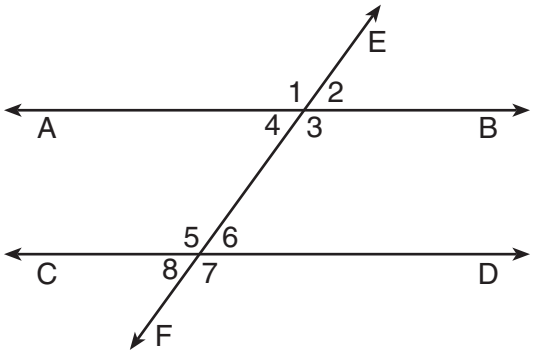
10. Given the diagram at right. (1 point each)
a. $\angle 4$ and $\angle 6$ are called what kind of angles?

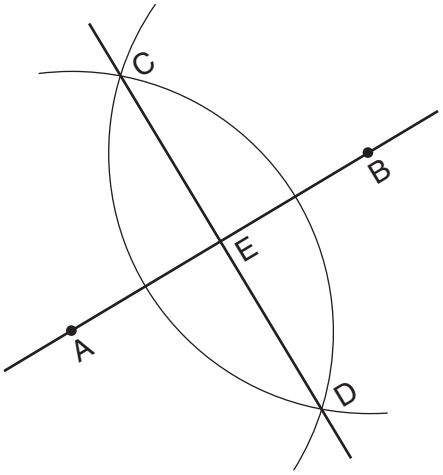
b. $\angle 1$ and $\angle 7$ have what relationship?

c. What would you call the angle pair $\angle 6$ and $\angle 8$?



d. Name a pair of corresponding angles.

11. In the construction at right, name two perpendicular lines or line segments. Use proper notation. (1 point)



12. (1 point)

In the figure, two angles are marked congruent.

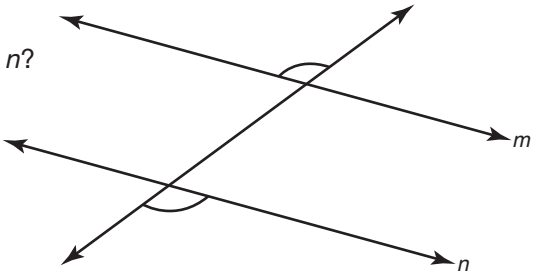
Which theorem or postulate justifies the conclusion that $m \parallel n$?

a. Alternate Exterior Angle Theorem

b. Alternate Exterior Angle Converse Theorem

c. Corresponding Angle Converse Postulate

d. Vertical Angle Theorem



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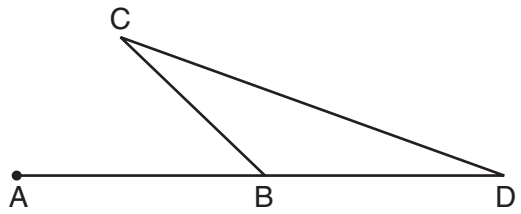
13.
In the diagram below of $\triangle BCD$, side $\overline{DB}$ is extended to point A.

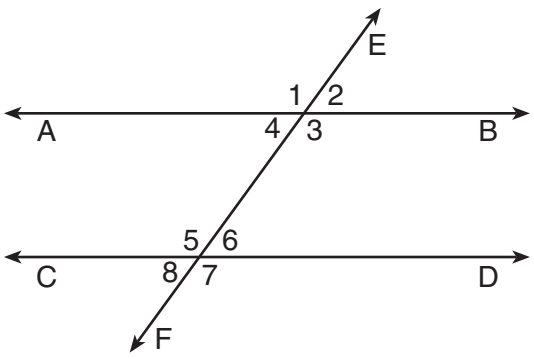


a. Name three collinear points.

b. Name two angles that make up a linear pair.

14. If $\angle A$ and $\angle B$ are complementary angles and the $m\angle A$ is twice the $m\angle B$, find $m\angle A$ and $m\angle B$. (2 points)

15. At right, name two angles that form linear pairs with $\angle 1$.
a. b.



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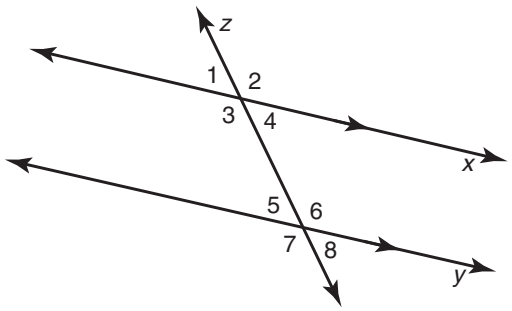
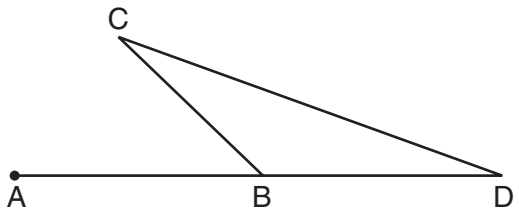
16. In the given diagram the lines $x \parallel y$, and $m\angle 1 = x + 25$ and $m\angle 5 = 60$.
Solve for x (2 points)



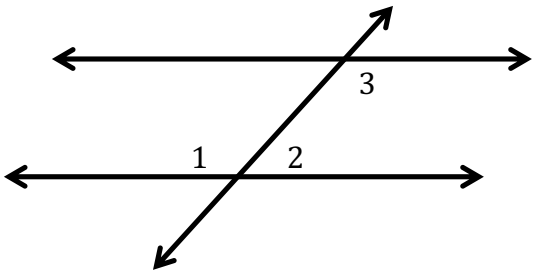
17.

In the diagram below of $\triangle BCD$, side $\overline{DB}$ is extended to point A. Given $m\angle ABC = 40$. What is $m\angle CBD$?



18. Of two supplementary angles, one has a measure of 50 degrees. What is the measure of the other angle?

19. In the diagram at right, two parallel lines intersect a transversal line
a. Name two congruent angles



b. What is the sum of the measures of $\angle 1$ and $\angle 2$?

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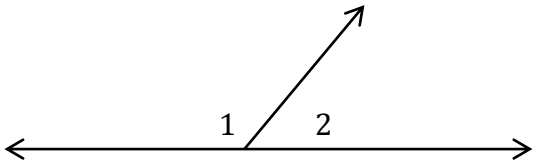
20. True or false: If $\angle 1$ and $\angle 2$ are supplementary angles, then the sum of $m\angle 1$ and $m\angle 2$ is 180 degrees.

21. Given $m\angle 1 = 10x + 40, m\angle 2 = 2x + 20$ as shown in the figure. Solve for *x* and the measures of the two angles. Show the steps and check your result. (6 points)



Geometry:

Substitute:

Solve algebra:

$x =$

$m\angle 1 =$

$m\angle 2 =$

Check:

22. The measures of two interior angles of a triangle are 40 degrees and 30 degrees. What is the measure of the third angle? (1 point)

23. The measures of the angles of triangle are represented by *x*, 3*x*+10, and 2*x*+20. Solve for *x*. (2 points)