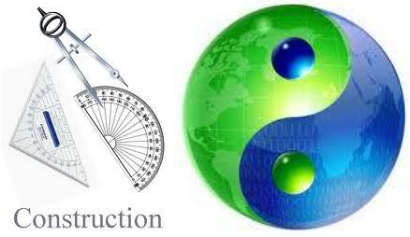
Name_____

Due on: *FRIDAY, FEBRUARY 24TH* **Ms. Nong** **Per:**___



Geometry 2nd semester

Math packet # 2 Standards: 8.0 and 16.0

- *8.0 —Students know, derive, and solve problems involving the perimeter, circumference, area, volume of common geometric figures.*
- *16.0—Students perform basic constructions with a straightedge and compass.*

Perimeter, Area, & Constructions		**points**
Find the Ratios		_____
Ratio applications [Area and Perimeter practice]		_____
Activity 14		_____
Read the symbols		_____
6-2 Find the area		_____
Construction Handbook	1	_____
	2	_____
Drawn to Scale		_____

Completed Work	**5 pts**
-front & back for each section	
1 side with Work	**3 pts**
Attempt (not completed)	**2pts**
No Work	**1 pts**
No math packet turn in	**0 pt**
***Do not score if there is a stamp on the page, write "stamp" = 5+ points*	

Unit test/quiz – *This page will be graded by Ms. Nong.*

Unit Quiz _____

YinYang project http://www.sausd.us/Page/15359 _____

**All constructions must show construction marks

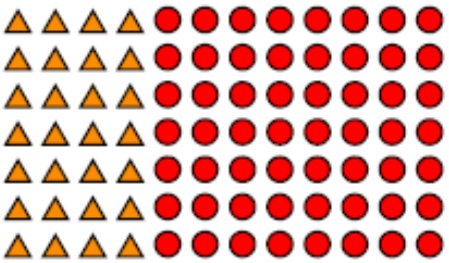
30 points for work + 20 points for Quiz + 50 points YinYang = 100 points total

YOUR POINTS: _____ POINTS

Name : _____ Score : _____

Teacher : _____ Date : _____

Find the Ratios

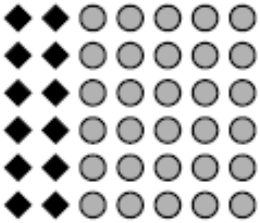


What is the ratio of △ to ● ? = ____ : ____ = ____ : ____ Simplified

What is the ratio of ● to (△ + ●) ? = ____ : ____ = ____ : ____

What is the ratio of △ to ★ ? = ____ : ____ = ____ : ____ Simplified

What is the ratio of ★ to (△ + ★) ? = ____ : ____ = ____ : ____



What is the ratio of ◆ to ○ ? = ____ : ____ = ____ : ____ Simplified

What is the ratio of ○ to (◆ + ○) ? = ____ : ____ = ____ : ____

What is the ratio of ☆ to ♥ ? = ____ : ____ = ____ : ____ Simplified

What is the ratio of ♥ to (☆ + ♥) ? = ____ : ____ = ____ : ____

Ratio Applications

Ratios of similar figures

Remember these RATIOS:

PERIMETER/SIDE is **unit : unit**

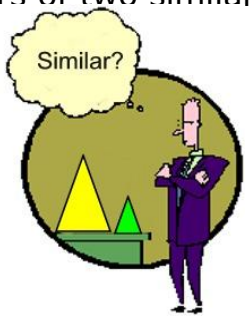
AREA : **$unit^2$: $unit^2$**

VOLUME: **$unit^3$: $unit^3$**

1.

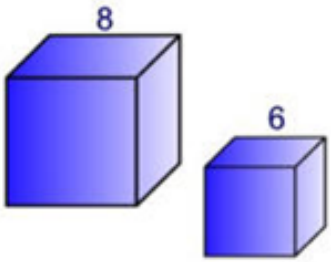
The ratio of the perimeters of two similar triangles is 3:7.

Find the ratio of the area



2.

The side of one cube measures 8 inches. The side of a smaller cube measures 6 inches. What is the ratio of the volumes of the two cubes (larger to smaller)?



3.

The areas of two similar polygons are in the ratio 25:81. Find the ratio of the corresponding sides.

Answers can be found at: http://regentsprep.org/Regents/math/geometry/GP11/PracSim.htm

Ratio in Perimeter or Area (flashcard)

4.

The perimeter of a triangle is 24cm and the lengths of its sides are in the ratio of 1: 2: 5. Find the length of each side.

5.

The perimeter of a triangle is 22ft and the lengths of its sides are in the ratio of 2: 3: 6. Find the length of each side.

6.

The perimeter of a triangle is 60m and the lengths of its sides are in the ratio of 2: 3: 5. Find the length of each side.

7.

The area of a rectangle is 72in. The lengths of its sides have a ratio of 2:1. Find the dimensions of the rectangle.

Area & Perimeter practice

1.

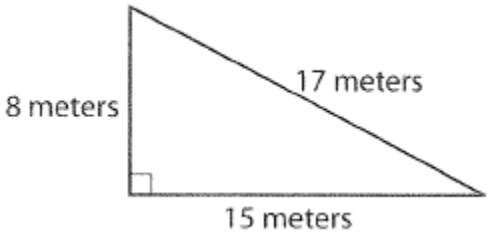
The sides of a triangle are 5, 6 and 10. Find the length of the longest side of a similar triangle whose shortest side is 15.

2.

What is the area of a rhombus with diagonals that measure 4 cm and 6 cm?

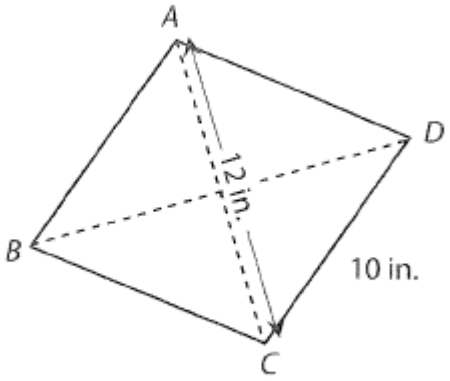
3.

What is the perimeter and area of the triangle below?



4.

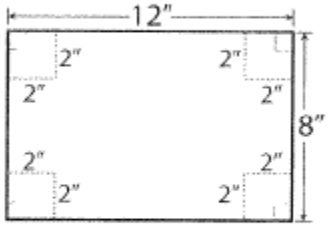
Rhombus *ABCD* is shown below.



What is the area of triangle *ACD*?

5.

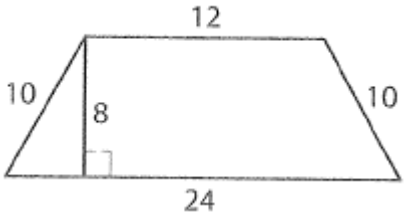
The pattern for the lid of a box is shown below.



The four dotted, square areas are cut away from the lid before it is folded. What is the remaining area of the lid, in square inches?

6.

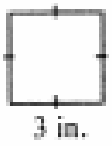
What is the perimeter and area of the isosceles trapezoid?



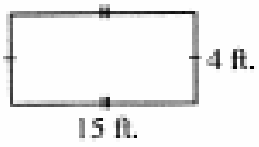
§6-2 PROBLEM SET

Find the area of each figure below.

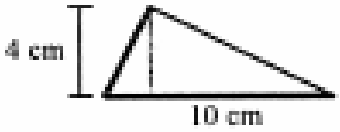
1.



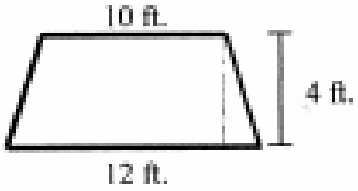
2.



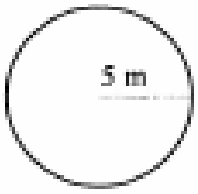
3.



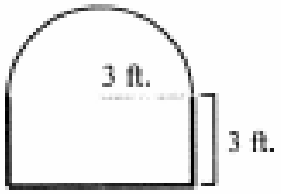
4.



5.

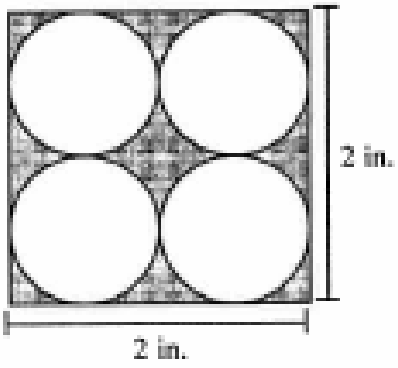


6.

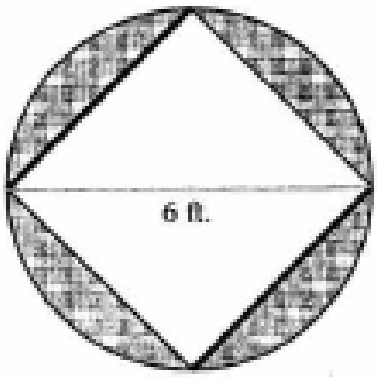


For each figure below find the area of the shaded region.

7.



8.



Solve each word problem below.

9. A certain square has a side which is 10 inches long. If a circle has the same area as the square then what is its radius?

10. A rectangle is twice as long as it is wide. If it has an area of 24.5 square centimeters, then what are the length and height?

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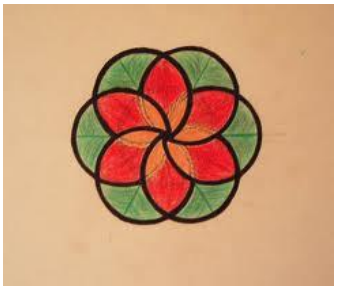
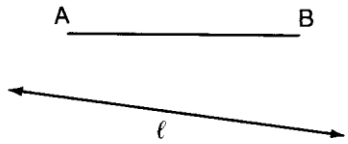


Construction Handbook 1

http://www.mathsisfun.com/geometry/constructions.html

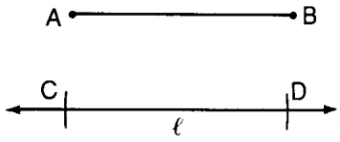
CONSTRUCTING A LINE SEGMENT EQUAL TO A GIVEN LINE SEGMENT

Construct a line segment equal to AB on ℓ.

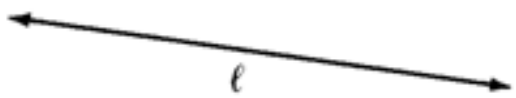


1. Place the compass points on A and B.
2. Mark the same distance on ℓ.

   CD = AB



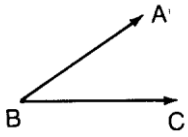
Put your construction here



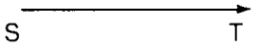
Put your construction here

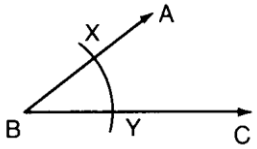
CONSTRUCTING AN ANGLE EQUAL TO A GIVEN ANGLE

Construct an angle equal to ∠ABC.

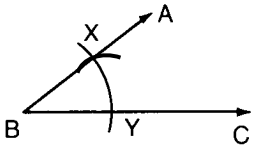


1. Draw ray ST.

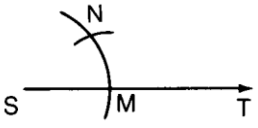




2. With centre B, draw an arc to cut AB and BC at X and Y. With centre S and the same radius, draw an arc to cut $\overrightarrow{ST}$ at M.

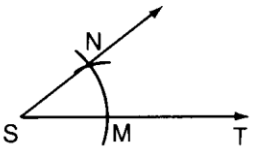


3. With centre M and radius XY draw an arc to locate N.



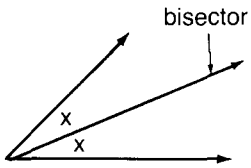
4. Join SN.

   ∠ABC = ∠NSM

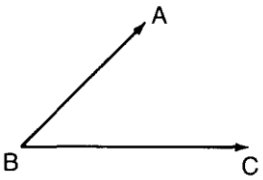


Construction Handbook 1cont

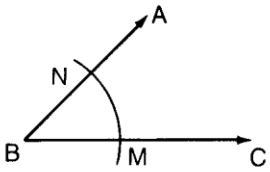
The bisector of an angle is a line, ray, or line segment that divides the angle into two equal parts.



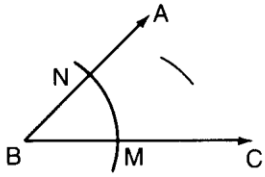
Bisect ∠ABC.



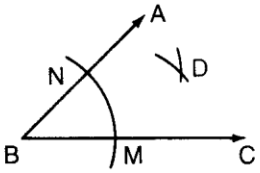
1. With centre B, draw and arc to cut the arms of the angle at M and N.



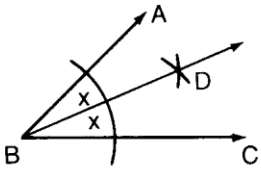
2. With centre M, draw an arc.



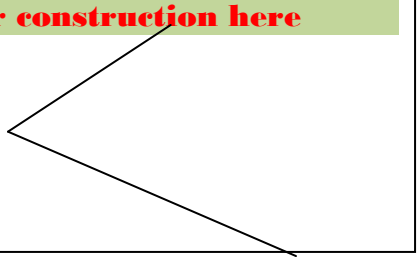
3. With centre N and the same radius as in Step 2, draw an arc to locate point D.



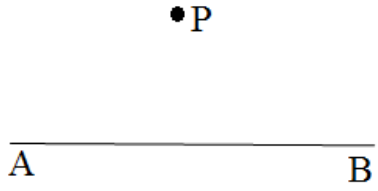
4. Join BD.
   BD is the bisector of ∠ABC.
   ∠ABD = ∠CBD



Put your construction here

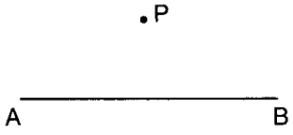


Put your construction here

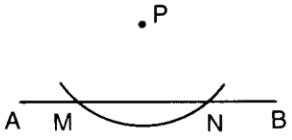


CONSTRUCTING A PERPENDICULAR TO A LINE FROM A POINT NOT ON THE LINE

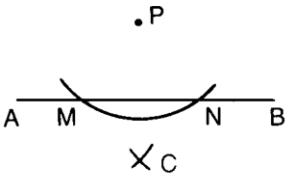
Construct a perpendicular to AB from P.



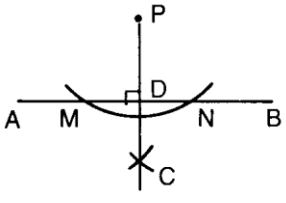
1. With centre P, draw an arc to cut AB at M and N.



2. With centres M and N and the same radius, draw arcs to intersect at C.



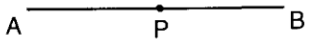
3. Join CP to intersect AB at D. PD ⊥ AB



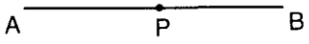
Construction Handbook 2

CONSTRUCTING A PERPENDICULAR TO A LINE FROM A POINT ON THE LINE

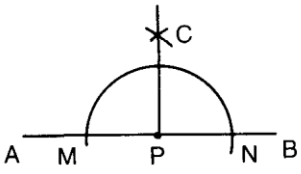
Construct a perpendicular to AB at P.



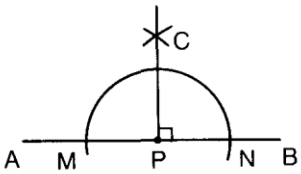
1. ∠APB is a straight angle.



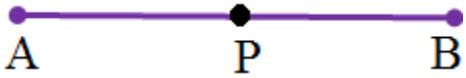
2. Bisect ∠APB



3. CP ⊥ AB



Put your construction here

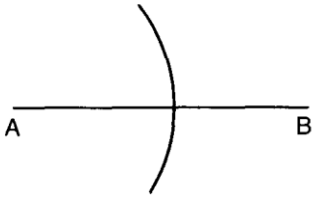


Put your construction here

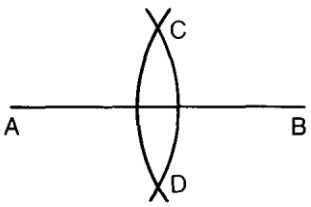
CONSTRUCTING THE RIGHT BISECTOR OF A LINE SEGMENT

Construct the right bisector of AB.

1. Use centre A.
   Draw an arc with a radius greater than $\frac{1}{2}$ the length of AB.

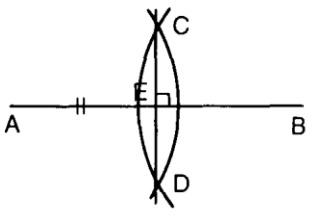


2. Use centre B and the same radius as step 1. Draw an arc intersecting the first arc at C and D.



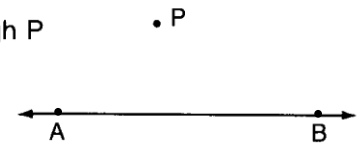
3. Join CD to intersect AB at E. CD is the right bisector of AB.

   AE = EB
   and ∠CEA = ∠CEB = 90°

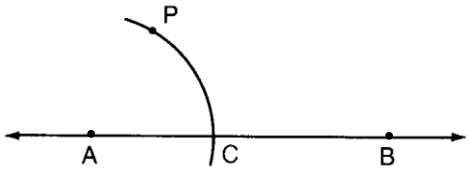


Construction Handbook 2cont.

Construct a line through P parallel to line AB.

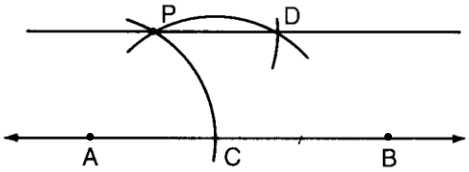


1. With centre A and radius AP draw an arc to cut AB at C.

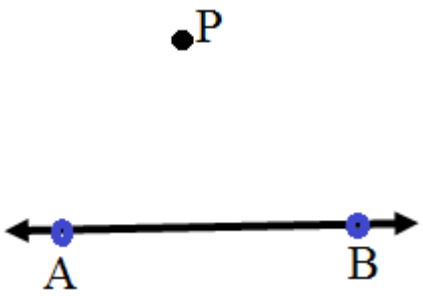


2. With the same radius and centres, P and C, draw arcs to intersect at D.

PD ∥ AB



Put your construction here



Put your construction here

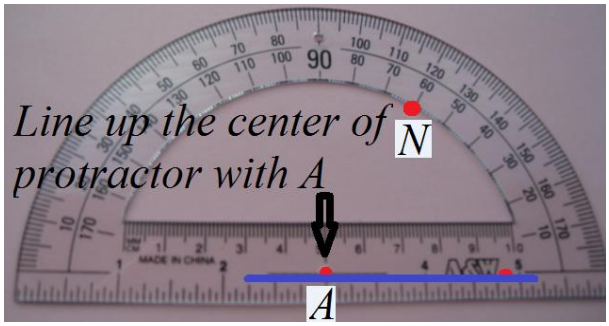
Concentric circles

- Are circles with the same center.
- Use your compass to construct two circles with different radii that have a center at point C

Construction with a protractor: "Drawn to Scale"

1. Draw a line AB

2. From point A, use a protractor to measure 60° and mark the point as N



4. From point N, use a protractor to measure 60° and mark the point as T [repeat step 2]
5. Connect ANT and you have an equilateral triangle.

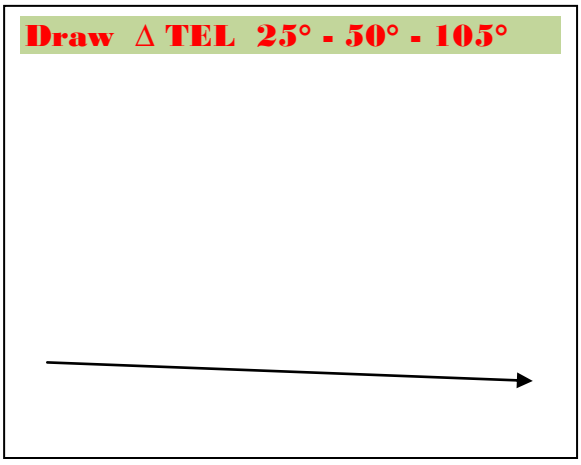
Geometry constructions website:

Go to: http://www.mathsisfun.com/geometry/constructions.html

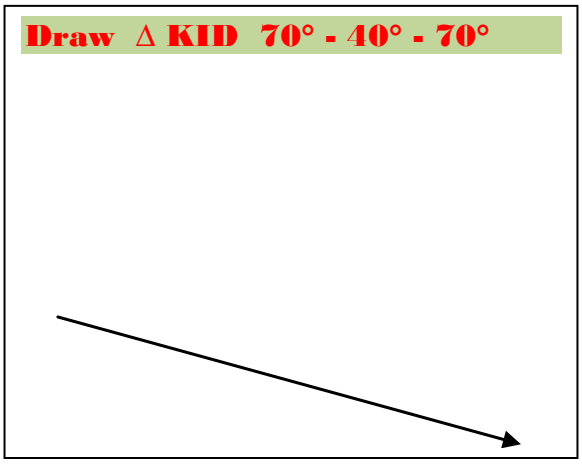
Or

http://www.mathopenref.com/constbisectline.html

Draw Δ TEL 25° - 50° - 105°



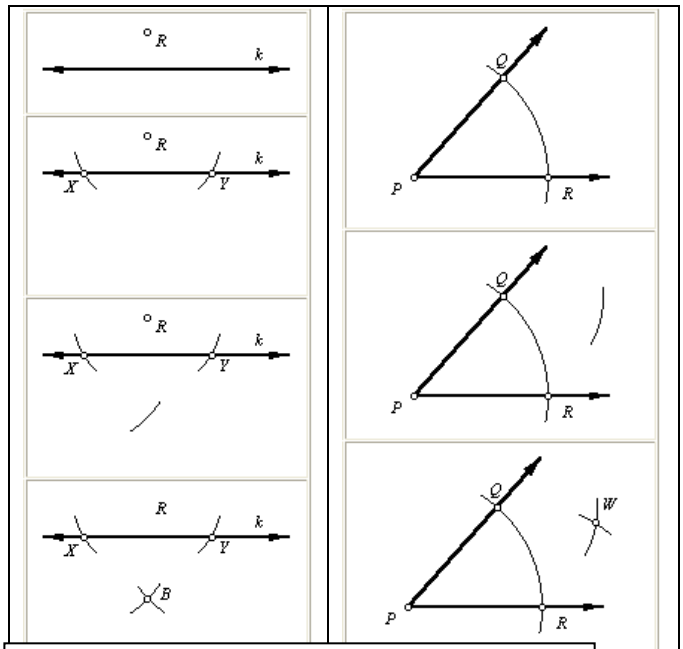
Draw Δ KID 70° - 40° - 70°



**Mark congruent angles

Unit QUIZ

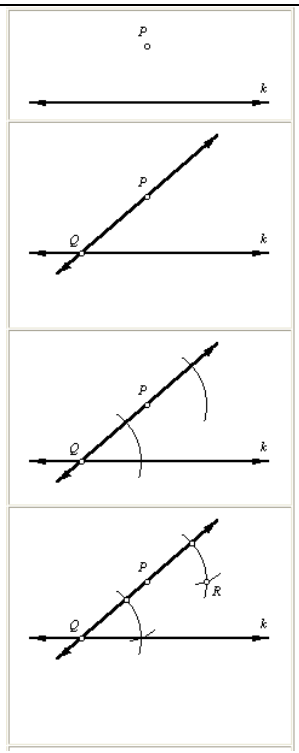
*Strategic build: standard **16.0***



Name the constructions.

1)

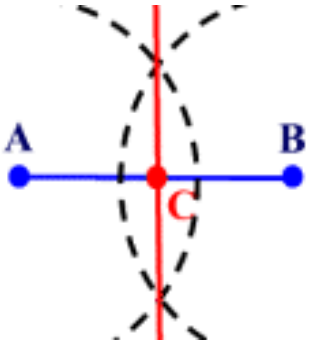
2)



3)

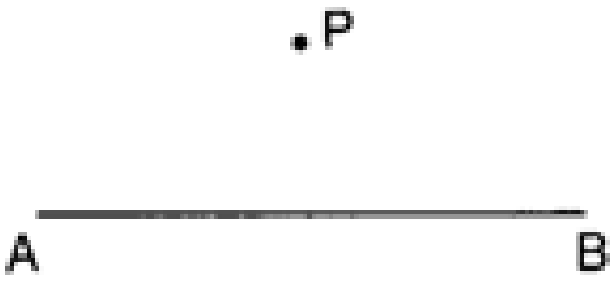
4)

a) Segment bisector and Midpoint
b) Angle Bisector
c) perpendicular lines
d) Parallel lines
e) Copying an angle



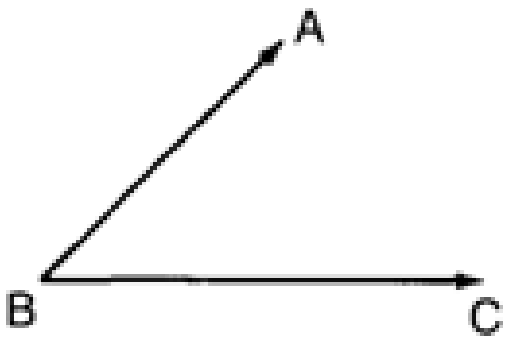
➢ *See it at [http://www.mathsisfun.com/geometry/constructions.html]*

5) Construct |_ lines

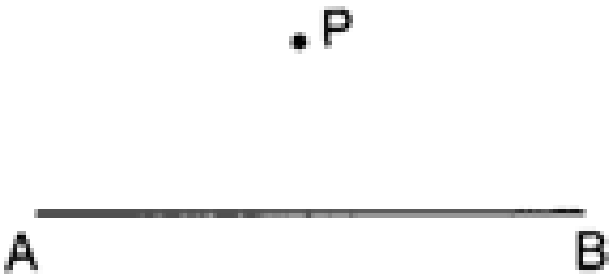


6) Construct a right bisector

7) Bisect ∠ABC

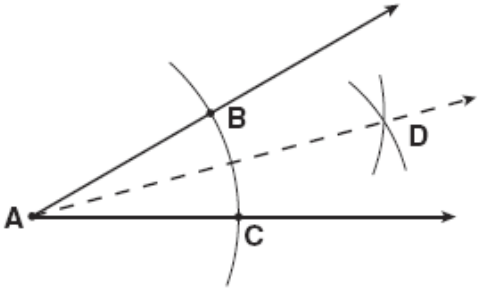


8) Construct // lines



9) Given: angle A

What is the first step in constructing the angle bisector of angle A?



a. From points B and C, draw equal arcs that intersect at D.

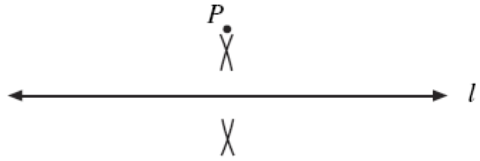
b. From point A, draw an arc that intersects the sides of the angle at points B and C.

c. Draw a line segment connecting points B and C.

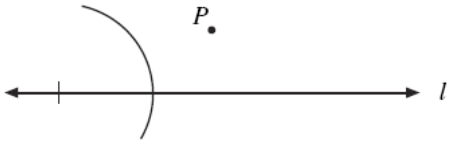
d. Draw ray $\overrightarrow{AD}$

10) Scott is constructing a line perpendicular to line l from point P. Which of the following should be his first step?

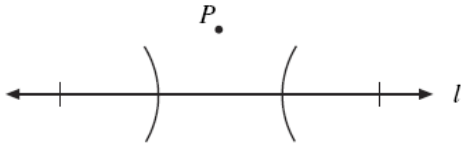
a.



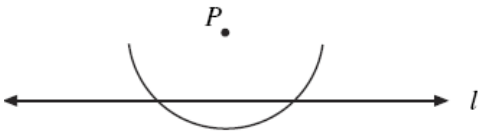
b.



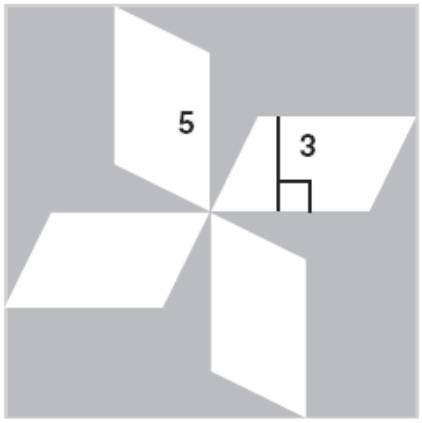
c.



d.



11) The figure below is a square with four congruent parallelograms inside. What is the area, in square units, of the shaded portion?



Solve: