Applied Geometry – Geometric Entities   Name: _____

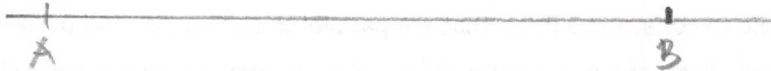NEED: SCALE, 2 △s, COMPASS

1. Draw a line segment AB that is 3.25 inches long. (2 points)

A   B

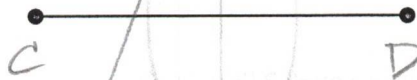2. Measure the line segment below to the nearest sixteenth of an inch. (2 points)

$2\frac{5}{16} < 2\frac{3}{8} < 2\frac{7}{16}$

inside dots   mid   outside dots.

3. If the line above was created for a drawing with a scale of $\frac{1}{2}$" = 1', what would be the full-scale length of the line? (2 points)

$4'9\frac{1}{2}"$

4. Create a perpendicular bisector to the line segment below. (4 points) Label the original line segment CD. (2 points)

C   D

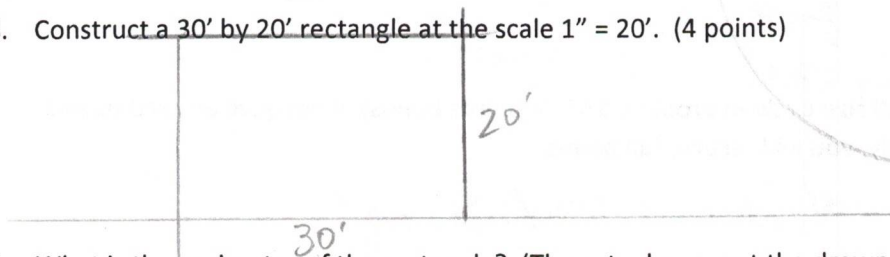5. Bisect the angle. (4 points) And measure the angle new angle. (2 points) Label the angle ∠EFG (2 points).

$23°$

E

$70°$

$11°+$

F $11°$

G
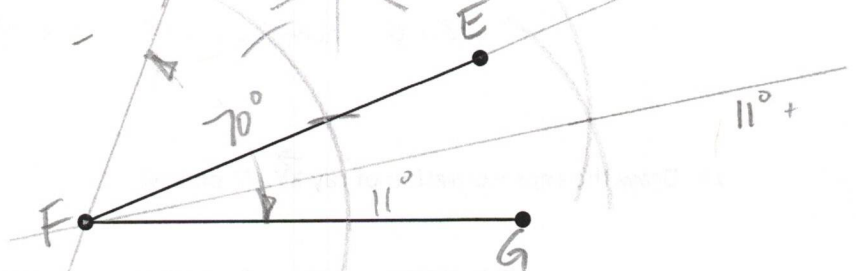
6. Construct ~~double~~ triple the angle above. ~~(A problem you have not seen.)~~ Measure it too. (2 points bonus)

2 POINTS

7. Create a circle with a diameter of 2.5 inches. (4 points)

R = 1.25

1.25

8. Construct a 30' by 20' rectangle at the scale 1" = 20'. (4 points)

20'

30'

9. What is the perimeter of the rectangle? (The actual one, not the drawn one.) (2 points bonus)

$30' + 30' + 20' + 20' = 100'$

42 points normalized to 40 points

28

SEGMENTS

10. Use triangles and a scale to construct 3 lines 'that are parallel to each other and perpendicular (2 points) to the line below. Draw them at a scale of $\frac{3}{4}$ " = 1' (2 points). Make the 3 parallel (2 points) lines 1 foot long (2 points) and 2 feet from each other (2 points). (Note: It is easiest to make the lines longer than they need to be and then designate their length with tick marks.)
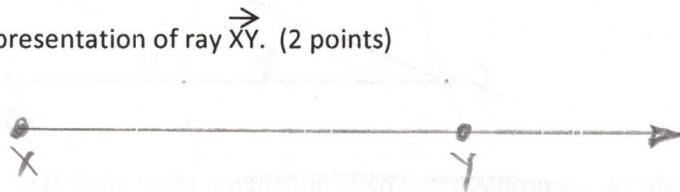
10
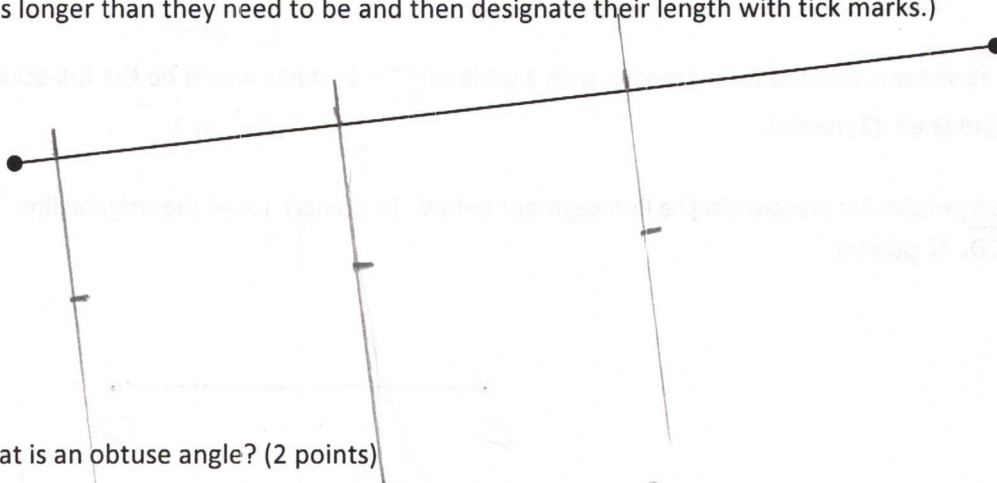
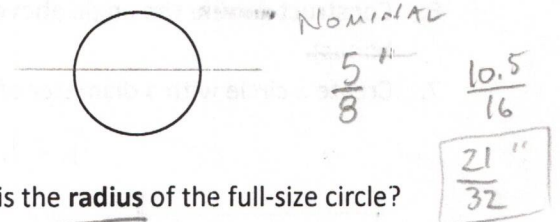11. What is an obtuse angle? (2 points)

ANGLE LARGER THAN 90°

12. What is an acute angle? (2 points)

ANGLE SMALLER THAN 90°

13. Draw the representation of ray $\overrightarrow{XY}$. (2 points)

X   Y

14. What is the **diameter** of the circle to the right? (2 points)

NOMINAL
$\frac{5}{8}$" $\frac{10.5}{16}$

$\frac{21"}{32}$

15. If the circle in problem 14 was drawn at a scale of 1" = 1', what is the **radius** of the full-size circle? (2 points)

$\frac{5}{8}$"   D = 8" → r = 4"
(7.5)   (r = 3.75)

16. What is the area of the full size circle in problem 15? (4 points bonus) If you give any radius and calculate the area correctly, you will receive full points.

$A = \pi r^2 = \pi (4")^2 = 50.265$ sq in

42 points normalized to 40 points $\frac{28}{\cancel{29}}$
$\cancel{48}$