Applied Algebra Name _____

Final Exam Period _____ Date _____

Part A: **Vocabulary -** Use a word from the box to complete each sentence. *(1 point each)*

Decagon	Acute	Rhombus	Angle	Isosceles
Octagon	Rectangle	Parallel	Trapezoid	Scalene
Circle	Ray	Diameter	Line segment	180^o
Dodecagon	Protractor	Line	Obtuse	90^o
Compass	Acute	Pentagon	Perpendicular	60^o
Octagon	Right	Equilateral	Altitude	360^o
Ruler	Radius	Parallelogram	Diagonal	3.14159

1. The tool used to measure angles in degrees is called a(n) _____.

2. A _____ is formed by joining all the points that are a given distance from a central point.

3. A triangle with all sides of unequal measure is called a(n) _____ triangle.

4. A(n) _____ is the part of a line that has two endpoints.

5. If two lines meet to form a right angle, then the two lines are _____.

6. A(n) _____is a parallelogram with all angles equal in measure .

7. The tool used to construct circles is called a(n) _____.

8. A polygon with ten sides is called a(n) _____.

9. The sum of the measures of the interior angles of a triangle equals _____.

10. An angle whose measure is greater than 90^o is called a(n) _____ angle.

11. A triangle with all sides of equal measure is called a(n) _____ triangle.

12. The segment connecting the center of a circle with a point on the circle is called a(n) _____.

13. A polygon with five sides is called a(n) _____.

14. If two lines lie on the same flat surface and do not cross, no matter how far they are extended, then the two lines are _____.

15. A quadrilateral with all sides equal in length is called a(n) _____.

16. A _____ is formed when two lines (or parts of lines) meet.

17. A(n) _____ is a quadrilateral with exactly one pair of parallel sides.

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Part B: **Using A Calculator** - Use your calculator to find the answers to the following: *(1point each)*

1. $5126 + 16{,}438$ **1.** _____

2. $6{,}8487{,}863 + 659{,}874 + 652{,}754$ **2.** _____

3. $8309 - 7357$ **3.** _____

4. $982 - 753$ **4.** _____

5. $68 \times \pi$ **5.** _____

6. $2374 \times 56 \times 173$ **6.** _____

7. $53{,}576 \div \pi$ **7.** _____

8. $135{,}102 \div 23$ **8.** _____

9. $(29 + 24 - 49) \times 7$ **9.** _____

10. $(56 + 74 + 23 + 49) \div 16$ **10.** _____

11. $6.36942 + 0.87767$ **11.** _____

12. $27.32 + 475.85 + 79 + 25.58$ **12.** _____

13. $70.63 - 8.53$ **13.** _____

14. $3742.18 - 314.93$ **14.** _____

15. 7.37×8.476 **15.** _____

16. 5728×84.75 **16.** _____

17. $(35.754 + 8.46 + 9.4) \times 4.75$ **17.** _____

18. $\frac{3}{20} + \frac{7}{15}$ **18.** _____

19. $\frac{9}{17} \times \frac{486}{57}$ **19.** _____

20. $\frac{1}{2}(18 + 24) \times 12$ **20.** _____

21. Maria wants to multiply 15 times π, but her calculator does not have a button marked π. If she enters 15×3.14 on her calculator, will her answer be too high or too low? (Write your answer below).

Part C: **Estimating Answers -** *(1 point each)*

Round the following decimal numbers to the nearest tenth (one decimal place):

1. 10.674 **2.** 5.81 **3.** 56.098 **1.** _____

2. _____

3. _____

4. 0.4715 **5.** 11.99 **6.** 4.345 **4.** _____

5. _____

6. _____

Round the following decimal numbers to the nearest hundredth (two decimal places):

7. 904.846 **8.** 0.1042 **9.** 0.2827 **7.** _____

8. _____

9. _____

10. 33.456 **11.** 8.928 **12.** 16.1287 **10.** _____

11. _____

12. _____

Round the following decimal numbers to the nearest thousandth (three decimal places):

13. 3.0191 **14.** 0.7893 **15.** 7.3926 **13.** _____

14. _____

15. _____

13. 26.9037 **14.** 4.67349 **15.** 88.34451 **16.** _____

17. _____

18. _____

19. The weight capacity of a certain elevator is posted as 1,000 pounds. **19.** _____
Out of the following, which would probably be a safe load? (estimate)

- **a.** 12 young children
- **b.** 8 adults
- **c.** 7 college students
- **d.** 10 high school students

Part D: **Geometric Constructions -** *(2 points each)*

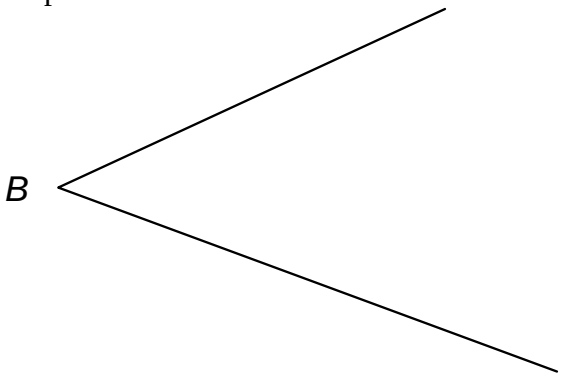
Use a ruler and protractor to draw and label each figure described below:

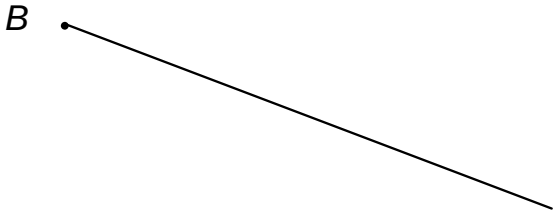
1. $\overline{AB}$ with a length of 10 cm

2. $\angle ABC$ with a measure of 130^{o}

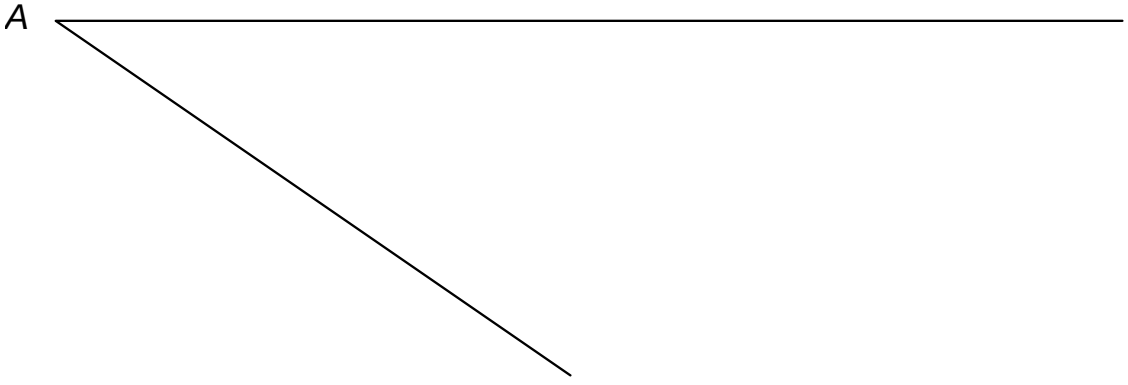
Use a compass and straight edge to construct and label each figure described below:

3. Duplicate $\angle B$.

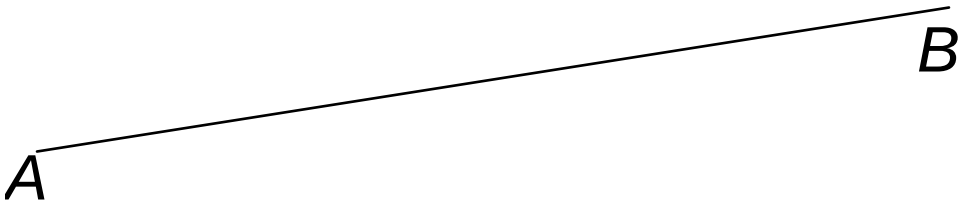




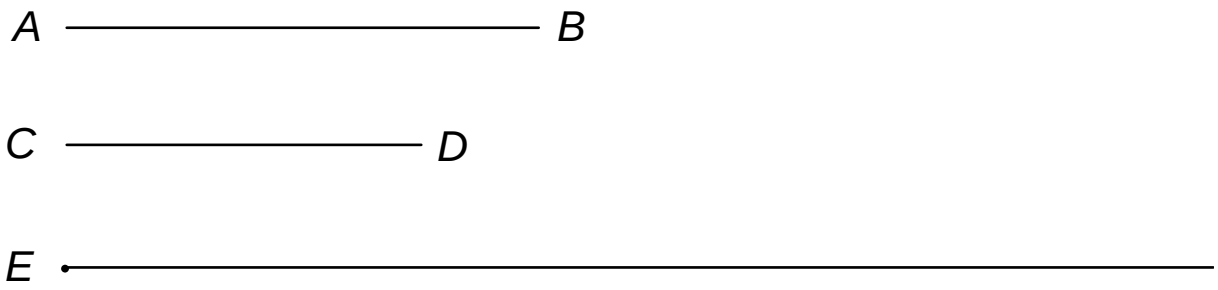
4. Bisect $\angle A$.



5. Construct the perpendicular bisector of s*AB*.



6. Construct segment s*EF* with $EF = \frac{1}{2}(AB + CD)$.



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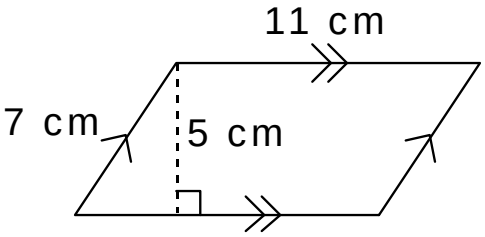
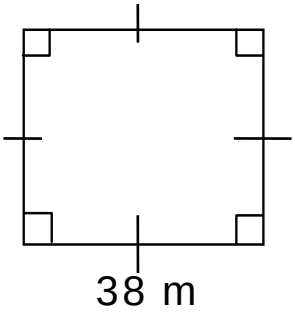
Part E: **Geometry: Perimeter** *(2 points each)*

Compute the perimeter (or circumference) for each of the figures in Problems 7-14:

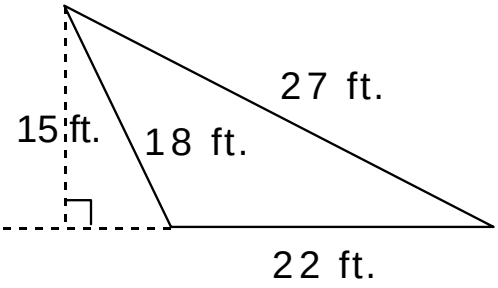
1. Perimeter = _____



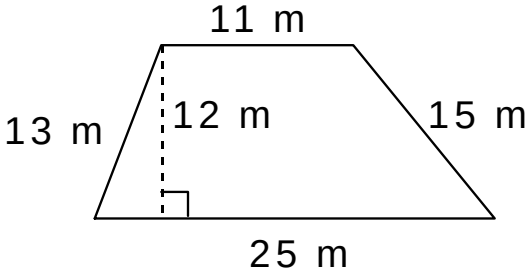
2. Perimeter = _____



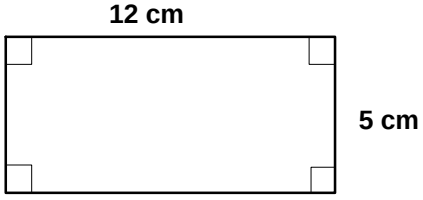
3. Perimeter = _____



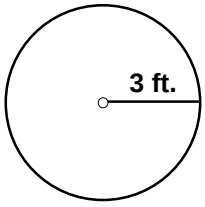
4. Perimeter = _____



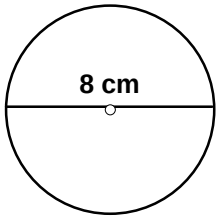
5. Perimeter = _____



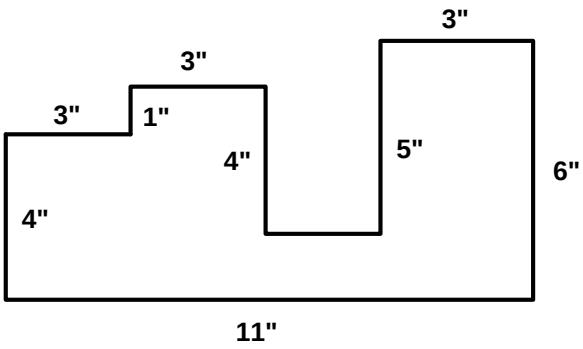
6. Circumference = _____



7. Perimeter = _____



8. Perimeter = _____



Part F: **Geometry: Area**

Complete the area formula for each figure by selecting from the answers on the right: *(1 point each)*

_____ **1.** parallelogram: A = _____ × *height*

_____ **2.** square: A = (_____)^2

_____ **3.** circle: A = π × (_____)^2

_____ **4.** trapezoid: A = _____ × $(b_1 + b_2)$ × *h*

_____ **5.** rectangle: A = _____ × *width*

_____ **6.** triangle: A = ½ × *base* × _____

A. *radius*

B. *length*

C. ½

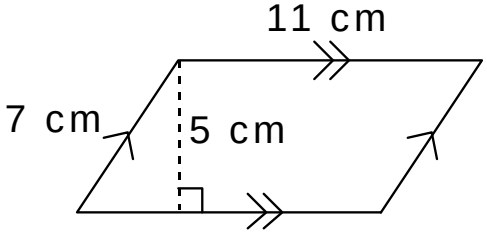
D. *side*

E. *height*

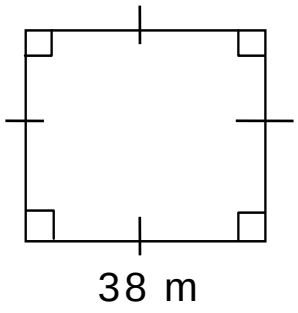
F. *base*

Compute the area for each of the figures in Problems 7-16 *(2 points each)*

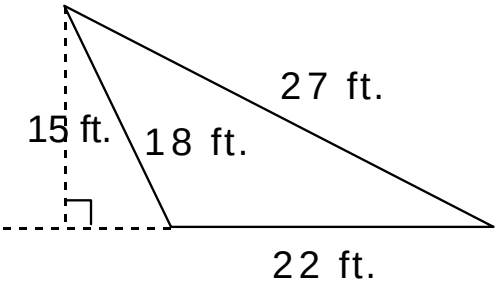
7. Area = _____



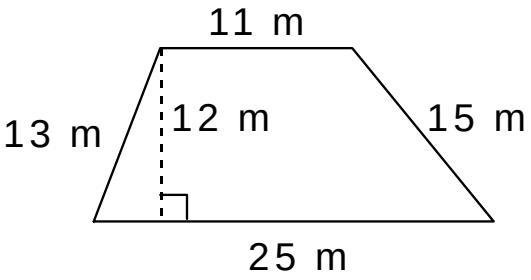
8. Area = _____



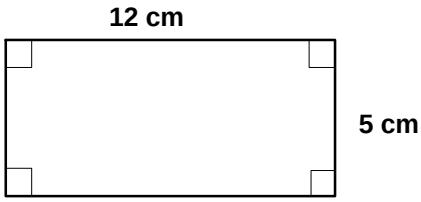
9. Area = _____



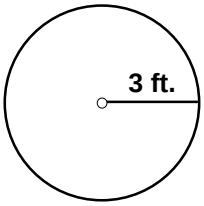
10. Area = _____



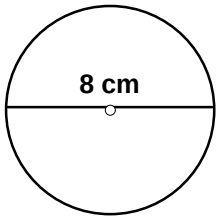
11. Area = _____



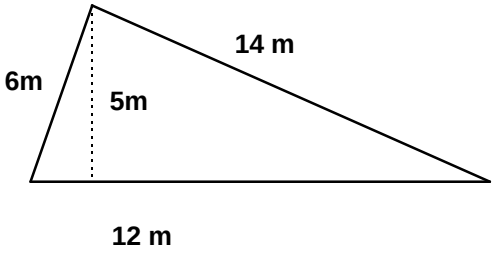
12. Area = _____



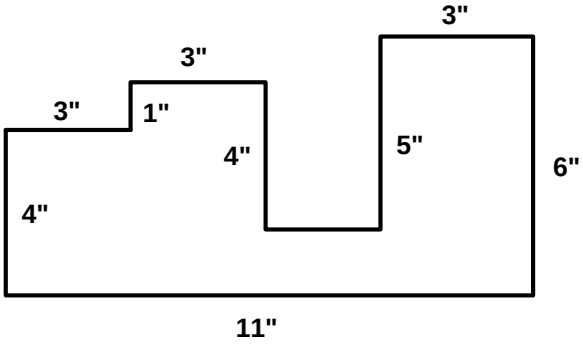
13. Area = _____



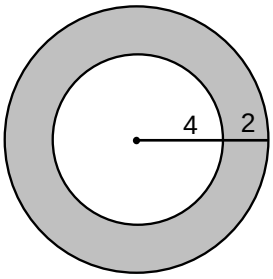
14. Area = _____



15. Area = _____



16. Area of shaded ring = _____



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Name _____

Part G: **Computer Lab** - *(10 points)*

1. Microsoft Excel - Make a bar graph for the following data, and answer the questions that follow. Your finished paper should contain:
    - a heading with your name, class and date
    - the appropriate type of graph with a title and accurate data
    - answers to questions relevant to that graph

Average Monthly Earnings (Adults 18 and over)

Level of Education	Average Monthly Earnings
No high school diploma	$856
High school diploma only	1357
Vocational degree	1568
Associate degree	1879
Bachelor's Degree	2489
Master's degree	3211
Doctorate degree	4545
Professional degree (e.g. medicine)	5554

a) On the average, how much **more** *per year* would a person with only a high school diploma earn than a person who did not have a high school diploma?
b) *Over a lifetime,* how much more money could a person expect to earn with a high school diploma than without a high school diploma?

2. Geometer's Sketchpad - Make a Sketchpad drawing of all of the following figures. Your finished paper should contain:
    - a heading with your name, class and date
    - all appropriate labels and/or measurements

    a) What are the similarities and differences between a segment, ray and line? Show labeled examples of each **and** provide a written explanation.
    b) Construct a circle with a radius of 1. 5 inches. Label and measure the following:
        - the radius
        - the diameter
    c) Construct a trapezoid and measure each side of the trapezoid. Construct and measure the altitude (the segment with a length equal to the trapezoid's height). Calculate the area of the trapezoid by using the appropriate area formula. Then measure the area using the program's measure menu.