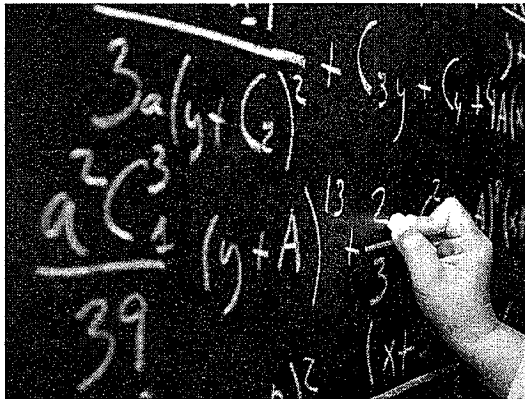


FOOTHILLS ACADEMY
GRADE 10 SUMMER MATH PACKET



NAME _____

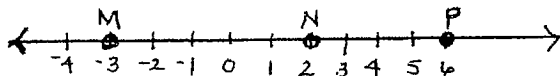
10th GRADE SUMMER REVIEW PACKET

This packet is a review of 9th grade Geometry concepts. It will be counted as a grade when you attend Foothills Academy this fall.

Please complete the packet on another sheet of paper. Graph paper will be needed.

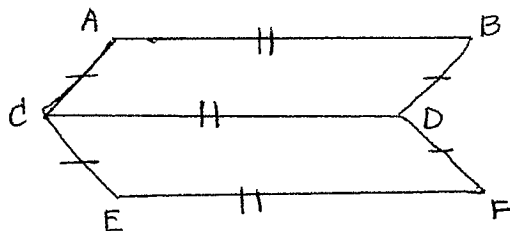
Please fully label and number all problems and answers.

For numbers 1-3, use the following diagram to find the length of the segments.



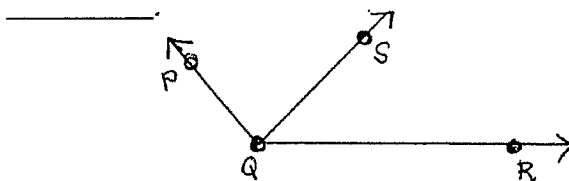
1. MN _____
2. NP _____
3. MP _____

4. Complete the following statement: If point R is between points P and Q on a line, then $PR + RQ =$ _____.
5. Name all congruent segments for the following picture:

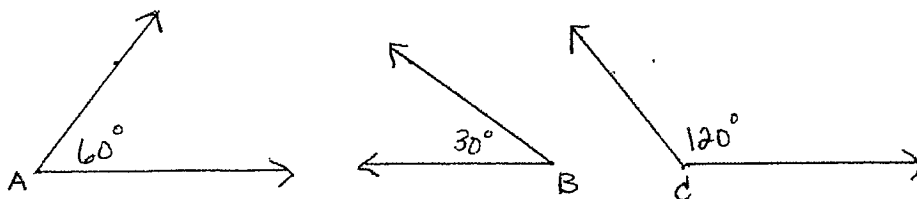


6. Towns A, B, C, and X are located along a straight highway. Town B is between A and C, and the distance from A to C is 41 miles. BC is 2 miles more than twice AB. Write an equation and solve for AB and BC.
7. Complete the following statement for the angle addition postulate:

If point S is in the interior of $\angle PQR$, then $m\angle PQS + m\angle SQR =$



8. Name all complementary and supplementary angle pairs for the following:

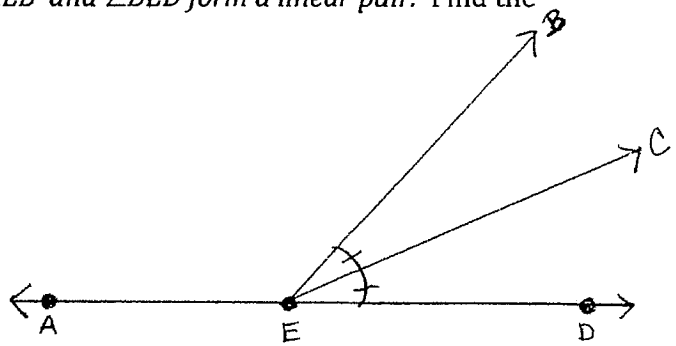


In the figure below, $m\angle CED = 25^\circ$ and $\angle AEB$ and $\angle BED$ form a linear pair. Find the following:

9. $m\angle BEC =$ _____

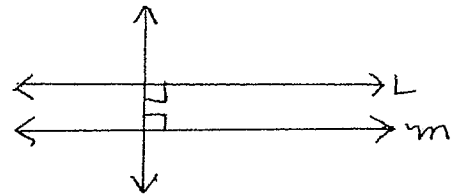
10. $m\angle AEB =$ _____

11. $m\angle AEC =$ _____

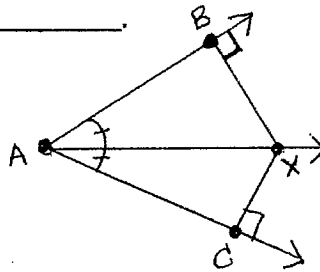


For numbers 12 and 13, look at the corresponding figure and fill in the blank with the appropriate word.

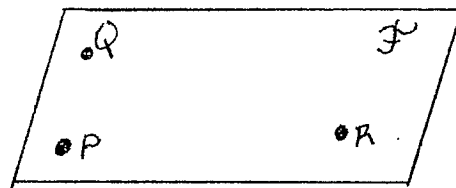
12. Lines L and M are _____.



13. BX and CX are _____.



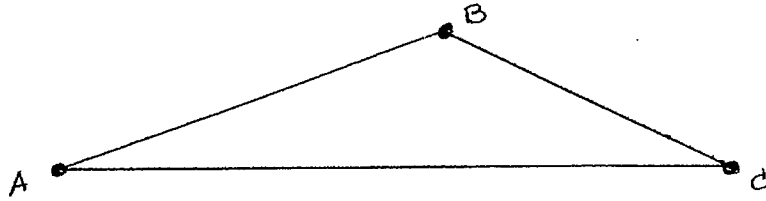
14. Name the figure. (You may use more than one name.)



15. Name the figure: $\leftarrow \overset{x}{\bullet} \cdots \overset{y}{\bullet} \overset{l}{\bullet} \rightarrow$

16. Fill-in the following statement: The perpendicular bisectors of a triangle intersect at a single _____.

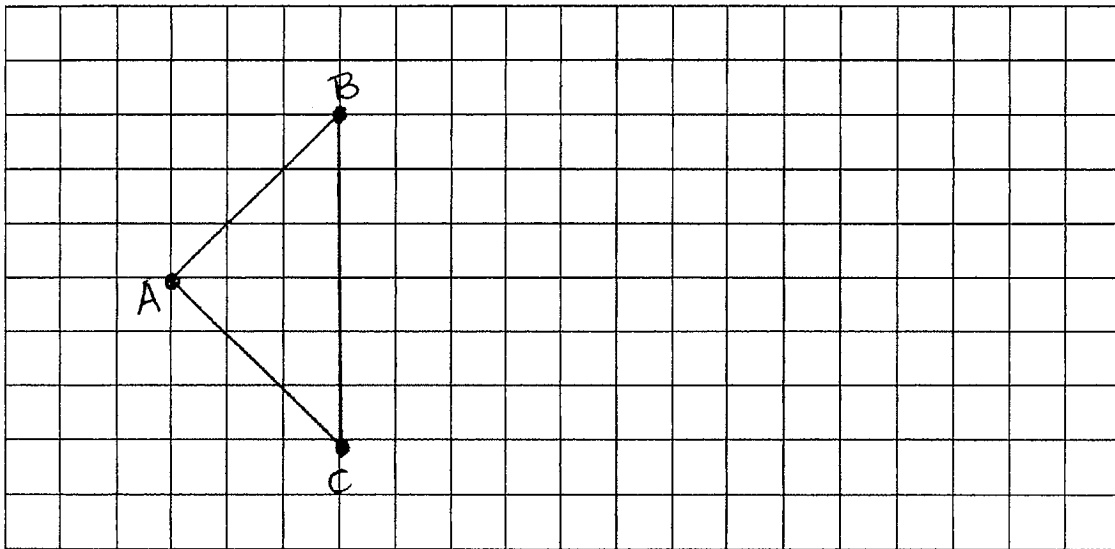
17. Find the perpendicular bisectors of each side of $\triangle ABC$.



18. Complete the following: Points that lie on the same line are said to be _____.

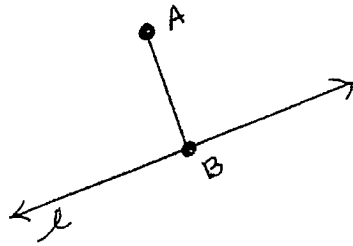
19. Is it possible for 2 points to be noncollinear? Why or why not?

20. Translate the following figure to the right.

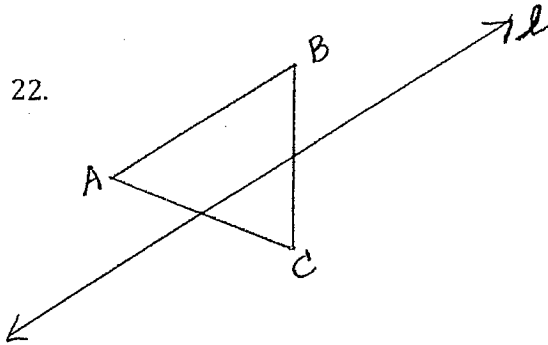


For numbers 21 and 22, reflect each figure below across line L .

21.



22.

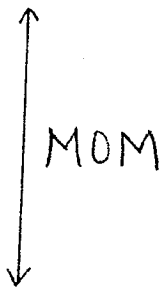


23. Reflect the following word below:

a.



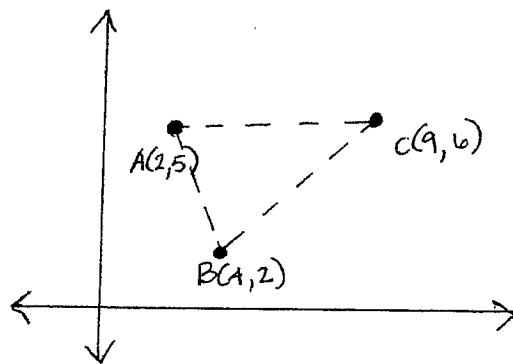
b.



c.



24. Copy $\triangle ABC$ and multiply x - and y - coordinates by -1 , then plot each new point.



25. Describe the result if I applied the rules below to the following:

a. $F(x,y) = (x+7, y)$

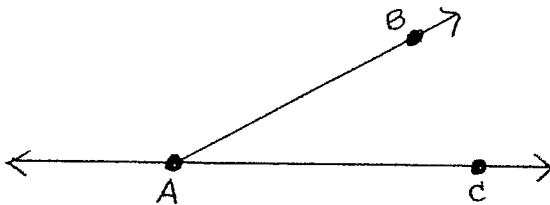
b. $P(x,y) = (x, y-4)$

26. Graph the line $y = x$, completing and using the table below:

X	Y
0	?
2	?
-1	?

27. Complete the following: In figure 27.1, A, B, and C are points, AC is a line, AB and AC are line segments, _____, _____, _____, are rays, and $\angle BAC$ is an angle.

Fig. 27.1



28. Complete the If-Then Transitive Property:

Given: If A then B, and if B then C...

You can conclude: If A, then _____.

29. Given the following statements:

If a "star" doesn't flicker, then it is a planet.

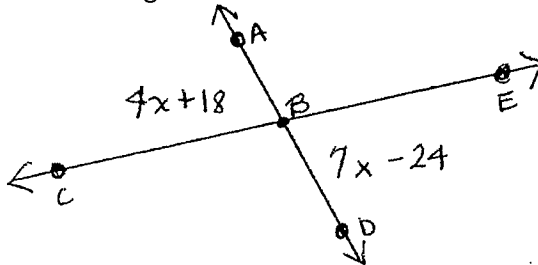
The evening star doesn't flicker.

What is the conclusion?

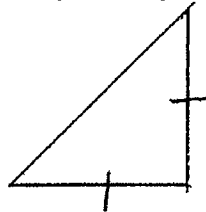
30. What are the next four terms in the sequence?

$1/1, 1/4, 1/9, 1/16 \dots$ _____, _____, _____, _____

31. Use the diagram to find x and $m\angle ABC$.



32. Draw the axis of symmetry for the figure below.



Determine whether the following could be the result of a reflection, rotation, or either.

33. DX is the image of BX .

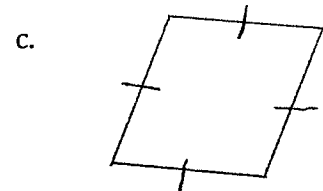
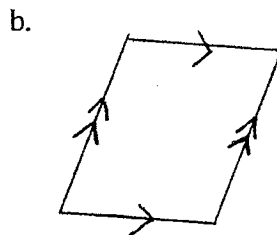
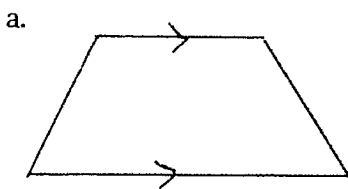
34. AB is the image of AD .

35. $\angle BAX$ is the image of $\angle BCX$

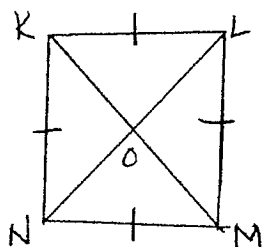
36. Graph the equation: $y = (x - 1)^2 + 3$

37. Graph the equation and determine the axis of symmetry by writing it as an equation. $y = |x| + 3$.

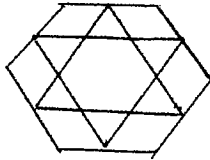
38. Name the following quadrilaterals:



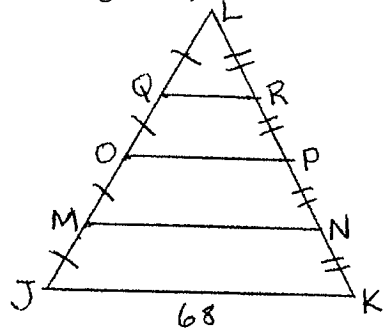
39. In square $KLMN$, $KL = 50$ and $KM \approx 70.7$. Find LM and $m\angle LOM$.



40. Draw all axes of symmetry for the following figure:

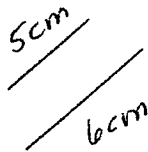


41. Refer to diagram $\triangle JKL$ below. Find the lengths of OP , QR , and MN .

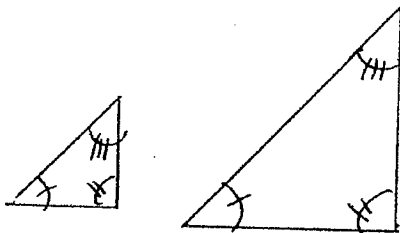


In numbers 42-44, determine whether the pairs of figures below are congruent:

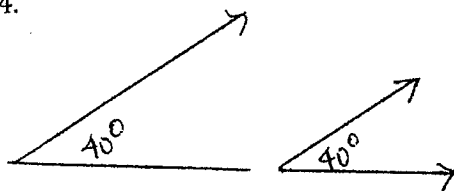
42.



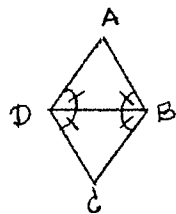
43.



44.

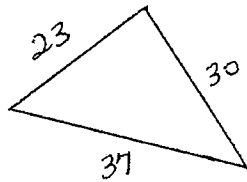


45. If $m\angle BDA = x^\circ$, what is $m\angle DAB$?

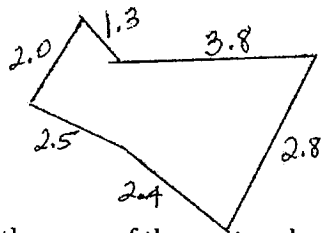


Find the perimeter of the following polygons in numbers 46 and 47.

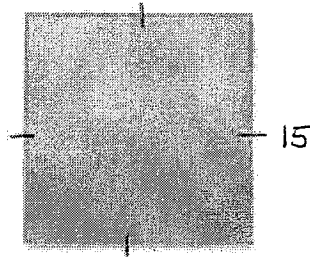
46.



47.



48. Find the area of the rectangle.



49. Find the circumference of a circle with a diameter of 11.
50. Three sides of a triangle are given. Classify the triangle as right, acute, or obtuse. Given: 48, 63, and 65.
51. The hypotenuse of a 45-45-90 triangle is 100. Find the length of the legs.
52. Find the distance between the pair of points (0,0) and (6,8).
53. Write the distance formula.
54. Find the distance between the following two points in space using a version of the distance formula: (2,4,5) and (0,7,-1).
55. Sketch the plane defined by the equation $2x + y - z = 10$.
56. Plot the line represented by the parametric equations :
- $$x = -t + 2 \text{ and } y = t - 4 \text{ and } z = -3t + 1$$

57. Find the ratio of surface area to volume for a cube with a volume of 64 cubic inches.

58. Compare the ratios of surface area to volume for a cube with an edge length of 4 and for a right rectangular prism with the dimensions $4 \times 7 \times 3$.

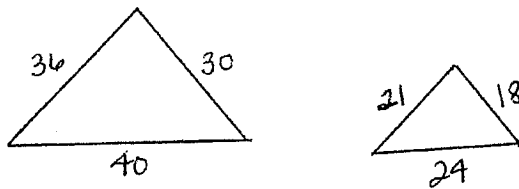
For 59 and 60, use the following information: a right cylinder has a radius of 4 and a height of 9.

59. Find the lateral area of the cylinder.

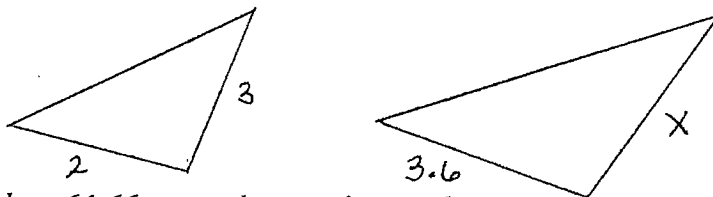
60. Find the surface area of the cylinder.

61. Find the surface area of a sphere with a radius of 5.

62. Determine whether the polygons are similar.

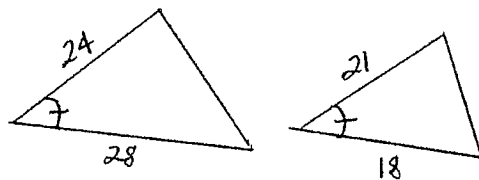


63. The figures below are similar. Find x .

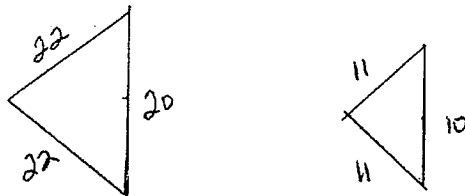


For numbers 64-66, name the postulate or theorem that can be used to prove that the triangles are similar.

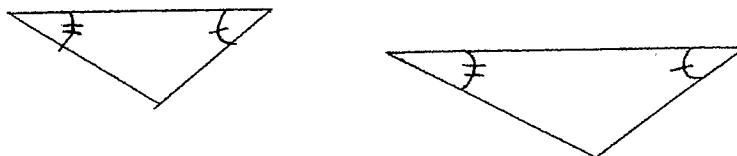
64.



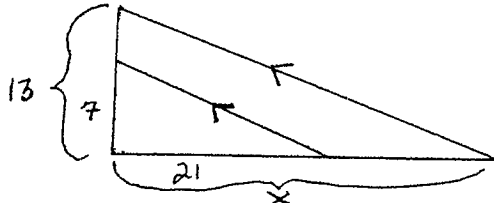
65.



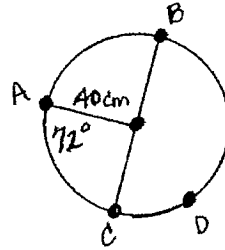
66.



67. Use side-splitting theorem to find x .

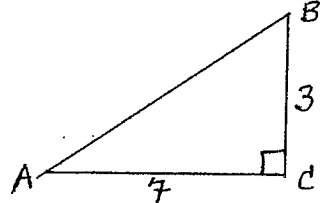


68. Name a chord, radius, central angle, and major arc.

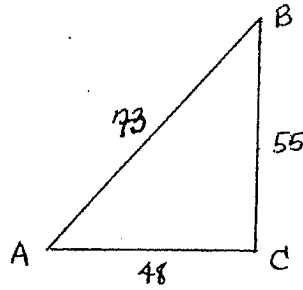


69. Sketch the circle $x^2 + y^2 = 49$.

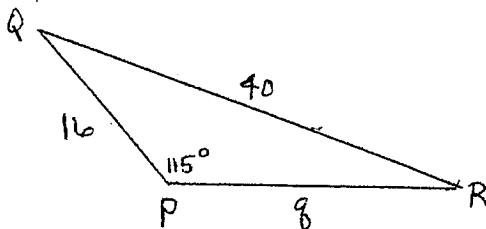
70. Use the right triangle to find the tangent of angle A.



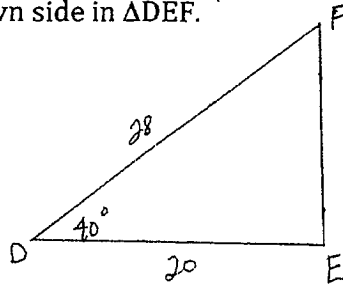
71. Use the given right triangle to find sine and cosine of angle A.



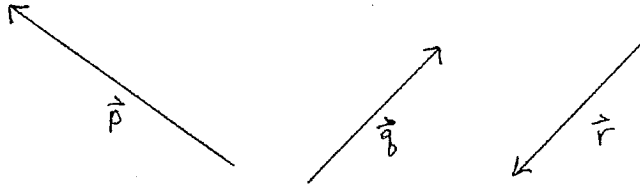
72. Find the unknown angles in $\triangle PQR$.



73. Find the unknown side in $\triangle DEF$.



Use the vectors below, \vec{p} , \vec{q} , and \vec{r} , to complete numbers 74 and 75.



74. Find the sum of \vec{p} and \vec{q} by the head to tail method.

75. Find the sum of \vec{p} and \vec{r} using the parallelogram method.