

Instructions:

You must show ALL the work required in ALL questions. Use only the space provided for each question. Read the statements of the questions very carefully. You will be graded on your methods, not just your answers.

You need a pencil, an eraser, a reliable compass, and a straightedge for this exam. Any use of rulers, protractors, and calculators is prohibited during the exam.

You will have EXACTLY 50 minutes for the exam, which consists of problems numbered 1 – 14. Request a new copy of the exam if any of the problems are missing or hard to read.

1) (9 points) State whether each statement is always true (T) or not always true (F).

- | | | |
|--|---|---|
| a) A parallelogram is a rhombus. | T | F |
| b) A triangle can have at most one right angle. | T | F |
| c) A rhombus is a kite. | T | F |
| d) If two distinct circles in the plane intersect, they intersect at two points. | T | F |
| e) An acute triangle is a scalene triangle. | T | F |
| f) A scalene triangle is an acute triangle. | T | F |
| g) An isosceles triangle with a 60° angle is an equilateral triangle. | T | F |
| h) A square is a parallelogram. | T | F |
| i) If A, B, C are collinear, then $AB + BC = AC$. | T | F |
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2) (10 points)

a) Fill in the blanks: “In an isosceles triangle, the sides of equal length are called the _____.”

b) Complete the following definitions (Note: *The space provided is sufficient!*):

An angle is obtuse if _____

A triangle is scalene if _____

A trapezoid is a quadrilateral with _____

c) State the complete precise definition of a *circle*.

3) (3 points) Complete the following conversions.

a) $2.35 \text{ km} = \underline{\hspace{2cm}} \text{ m}$ b) $758 \text{ ml} = \underline{\hspace{2cm}} \text{ l}$ c) $4 \text{ m } 7 \text{ cm} = \underline{\hspace{2cm}} \text{ cm}$

4) (4 points) Add or subtract in compound units. Briefly show all your steps.

a) $2 \text{ km } 250 \text{ m} + 3 \text{ km } 860 \text{ m} =$

b) $6 \text{ ft } 8 \text{ in} - 4 \text{ ft } 10 \text{ in} =$

5) (5 points) Sketch a clock face showing 4:30 and calculate the smaller angle between the clock-hands.

6) (4 points) If $PQRS$ is a square, RST is an isosceles triangle, $RS = ST$, circle the value of $\angle w$.

PM 6B
p67
#5

20 25 40 45 50

7) (8 points) Form an equation in x , and solve the equation, showing the reasoning and facts used.

NEM1
P265
#4g

8) (10 points) Give a Teacher Solution: Form an equation in x , and solve the equation.

NEM1
P265
#4j

9) (10 points) Give a Teacher Solution: Find the value of x .

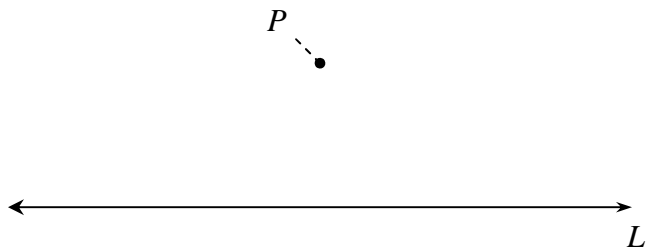
NEM1
P250
#8c

10) (8 points) Teacher Explanation: Draw a series of pictures (with short one-sentence explanations for each picture) to explain the paper-cutting demonstration of “the interior angles in a trapezoid are supplementary”.

11) (8 points) Teacher Explanation: Draw a series of pictures (with short one-sentence explanations for each picture) to explain typical mistakes made by students when they first begin using protractors to measure angles.

12) (10 points) Using your straightedge and compass,

a) Construct a line through P , perpendicular to L .



b) List the steps for the construction, following the format used in class.

13) (6 points) Using your straightedge and compass, construct a 45° angle. (*List of steps is not required!*)

14) (5 points) Give a Teacher Solution (with bar diagrams and units) to the following problem:

Kimberly cuts 6 pieces of tape, each $\frac{4}{5}$ m long, from a roll of tape 5 m long.
How many meters of tape are left in the roll?