Name: Date:

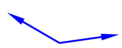
WORKSHEET :

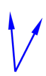
Intro Geometry
(Angles)

Classify each angle as acute, obtuse, right, or straight.

1)  ________

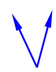
2)  ________

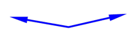
3)  ________

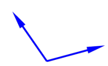
4)  ________

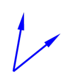
5)  ________

6)  ________

7)  ________

8)  ________

9)  ________

10)  ________

11) 90° ________

12) 91° ________

13) 54° ________

14) 3° ________

15) 175° ________

16) 122° ________

17) 152° ________

18) 53° ________

19) 180° ________

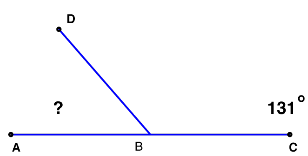
20) 34° ________

WORKSHEET :

Intro Geometry (Angles)

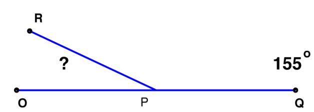
Find the missing angle measurement in each set of supplementary angles

1)



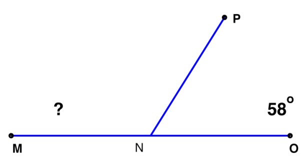
Angle = _______

2)



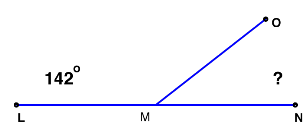
Angle = _______

3)



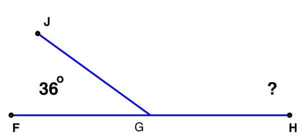
Angle = _______

4)



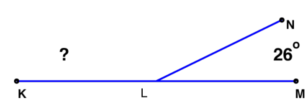
Angle = _______

5)



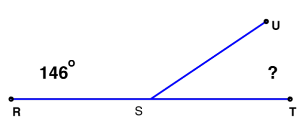
Angle = _______

6)



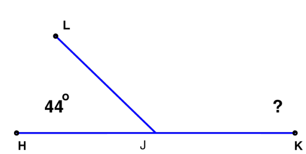
Angle = _______

7)



Angle = _______

8)



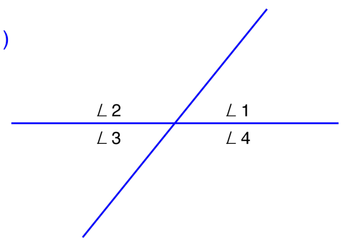
Angle = _______

WORKSHEET :

Intro Geometry
(Angles)

Find the missing vertical angles.

1)



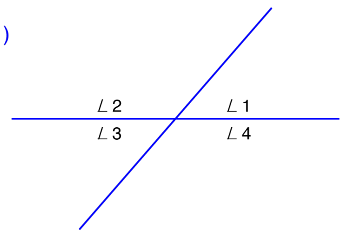
$\angle 1 =$ ______

$\angle 2 =$ ______

$\angle 3 =$ 51°

$\angle 4 =$ 129°

2)



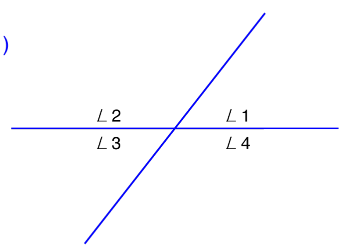
$\angle 1 =$ 49°

$\angle 2 =$ 131°

$\angle 3 =$ ______

$\angle 4 =$ ______

3)



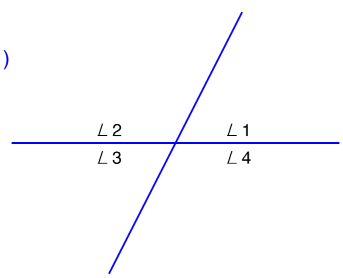
$\angle 1 =$ 52°

$\angle 2 =$ ______

$\angle 3 =$ ______

$\angle 4 =$ 128°

4)



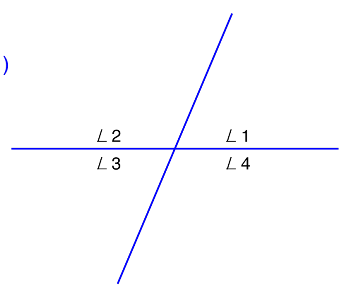
$\angle 1 =$ ______

$\angle 2 =$ 117°

$\angle 3 =$ 63°

$\angle 4 =$ ______

5)



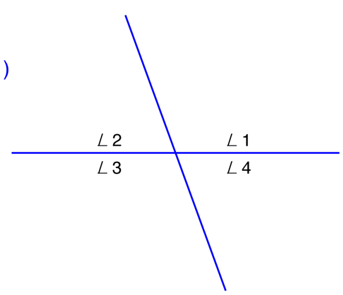
$\angle 1 =$ ______

$\angle 2 =$ ______

$\angle 3 =$ 67°

$\angle 4 =$ 113°

6)



$\angle 1 =$ 110°

$\angle 2 =$ 70°

$\angle 3 =$ ______

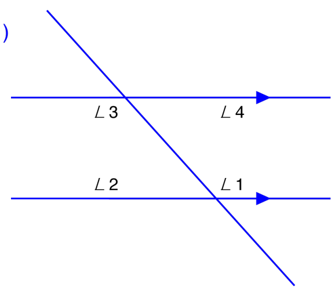
$\angle 4 =$ ______

WORKSHEET :

Intro Geometry (Angles)

Find the missing alternate angles.

1)



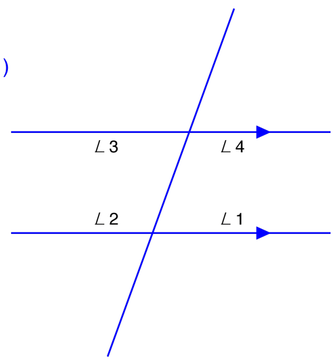
∠ 1 = ______

∠ 2 = ______

∠ 3 = 132^{o}

∠ 4 = 48^{o}

2)



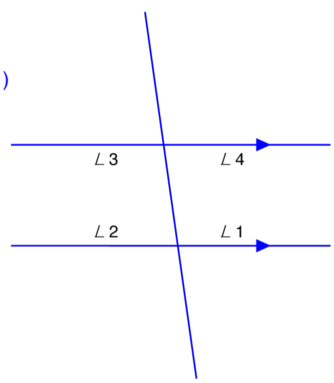
∠ 1 = 70^{o}

∠ 2 = ______

∠ 3 = ______

∠ 4 = 110^{o}

3)



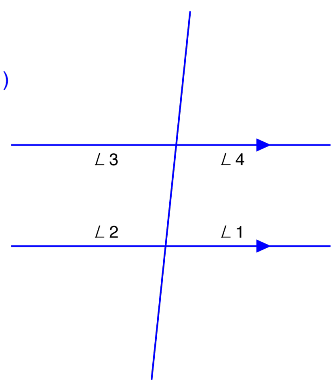
∠ 1 = ______

∠ 2 = 82^{o}

∠ 3 = 98^{o}

∠ 4 = ______

4)



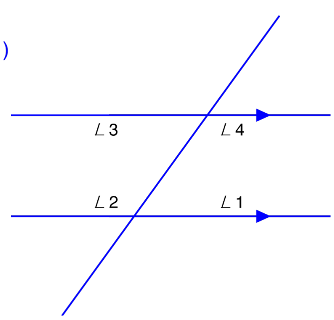
∠ 1 = 84^{o}

∠ 2 = ______

∠ 3 = ______

∠ 4 = 96^{o}

5)



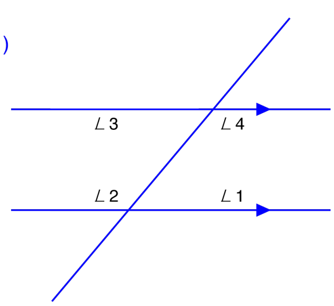
∠ 1 = 54^{o}

∠ 2 = 126^{o}

∠ 3 = ______

∠ 4 = ______

6)



∠ 1 = 50^{o}

∠ 2 = 130^{o}

∠ 3 = ______

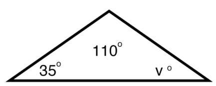
∠ 4 = ______

WORKSHEET :

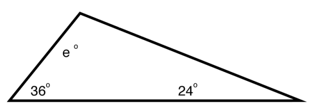
Intro Geometry
(Angles)

Triangle Angle Sum

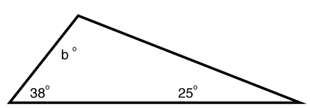
Solve for the given variable.

1) 

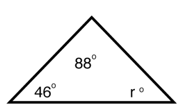
v = _____

2) 

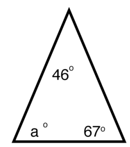
e = _____

3) 

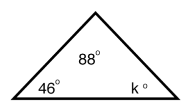
b = _____

4) 

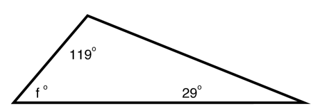
r = _____

5) 

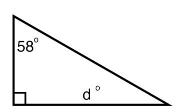
a = _____

6) 

k = _____

7) 

f = _____

8) 

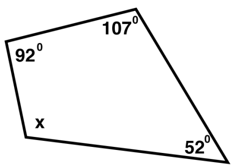
d = _____

WORKSHEET :

Intro Geometry
(Angles)

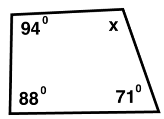
Find the measure of the missing angle.

1)



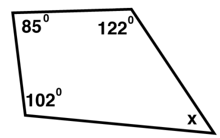
Solve for x ______

2)



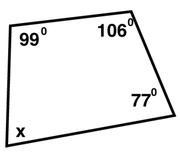
Solve for x ______

3)



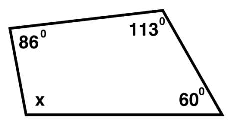
Solve for x ______

4)



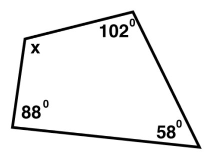
Solve for x ______

5)



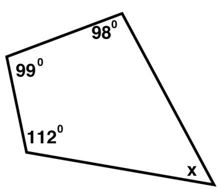
Solve for x ______

6)



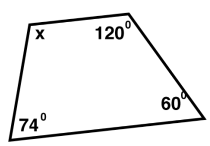
Solve for x ______

7)



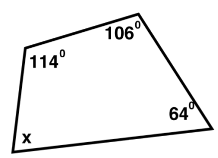
Solve for x ______

8)



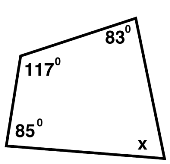
Solve for x ______

9)



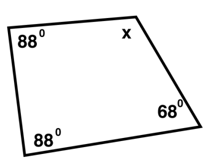
Solve for x ______

0)



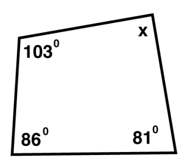
Solve for x ______

11)



Solve for x ______

12)

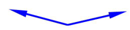
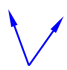
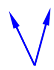
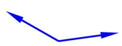
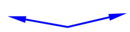
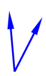
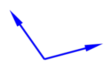
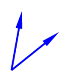


Solve for x ______

ANSWERS :

Intro Geometry
(Angles)

Classify each angle as acute, obtuse, right, or straight.

1)		Straight	6)		Obtuse
2)		Acute	7)		Acute
3)		Obtuse	8)		Obtuse
4)		Acute	9)		Obtuse
5)		Right	10)		Acute

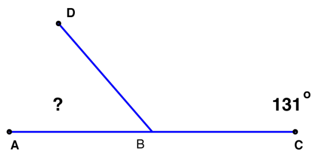
11)	90°	Right	16)	122°	Obtuse
12)	91°	Obtuse	17)	152°	Obtuse
13)	54°	Acute	18)	53°	Acute
14)	3°	Acute	19)	180°	Straight
15)	175°	Obtuse	20)	34°	Acute

ANSWERS :

Intro Geometry (Angles)

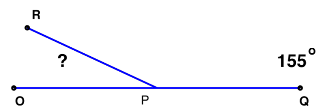
Find the missing angle measurement in each set of supplementary angles.

1)



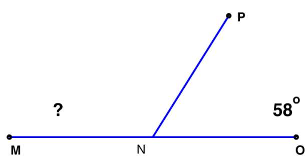
Angle = 49°

2)



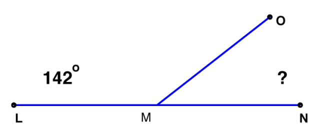
Angle = 25°

3)



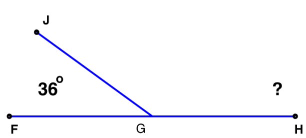
Angle = 122°

4)



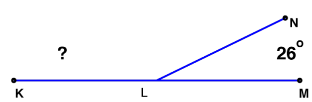
Angle = 38°

5)



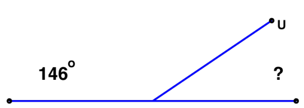
Angle = 144°

6)



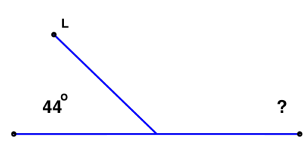
Angle = 154°

7)



Angle = 34°

8)



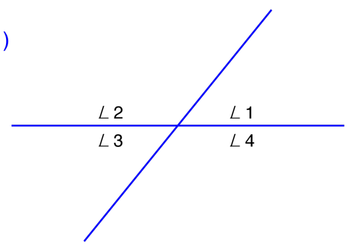
Angle = 136°

ANSWERS :

Intro Geometry
(Angles)

Find the missing vertical angles.

1)



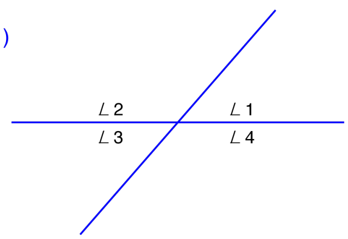
∠ 1 = 51^{o}

∠ 2 = 129^{o}

∠ 3 = 51^{o}

∠ 4 = 129^{o}

2)



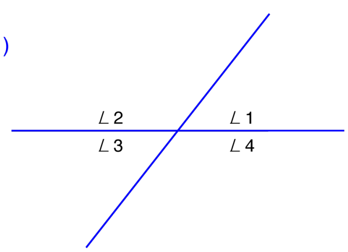
∠ 1 = 49^{o}

∠ 2 = 131^{o}

∠ 3 = 49^{o}

∠ 4 = 131^{o}

3)



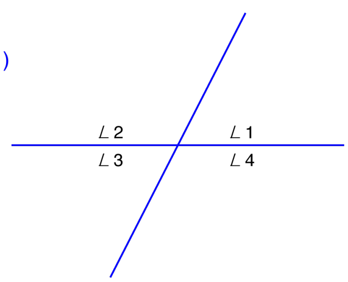
∠ 1 = 52^{o}

∠ 2 = 128^{o}

∠ 3 = 52^{o}

∠ 4 = 128^{o}

4)



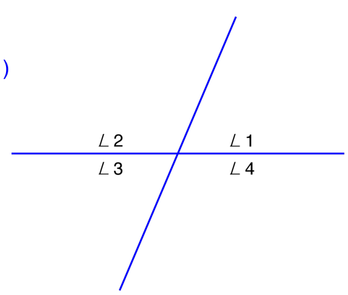
∠ 1 = 63^{o}

∠ 2 = 117^{o}

∠ 3 = 63^{o}

∠ 4 = 117^{o}

5)



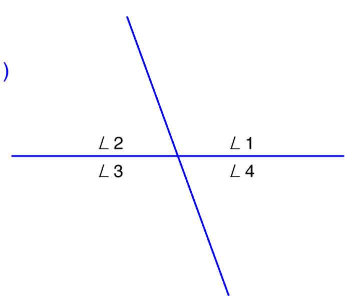
∠ 1 = 67^{o}

∠ 2 = 113^{o}

∠ 3 = 67^{o}

∠ 4 = 113^{o}

6)



∠ 1 = 110^{o}

∠ 2 = 70^{o}

∠ 3 = 110^{o}

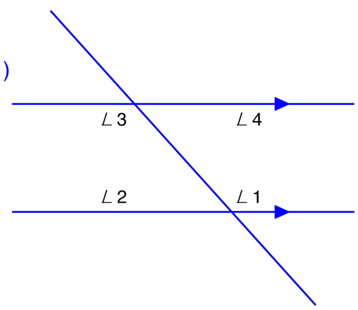
∠ 4 = 70^{o}

ANSWERS :

Intro Geometry (Angles)

Find the missing alternate angles.

1)



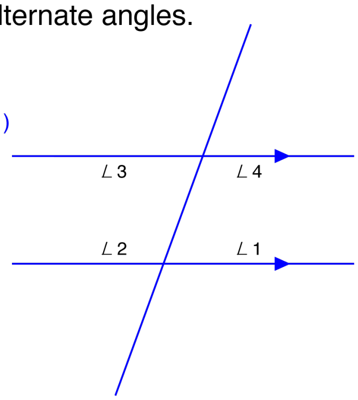
∠ 1 = 132°

∠ 2 = 48°

∠ 3 = 132°

∠ 4 = 48°

2)



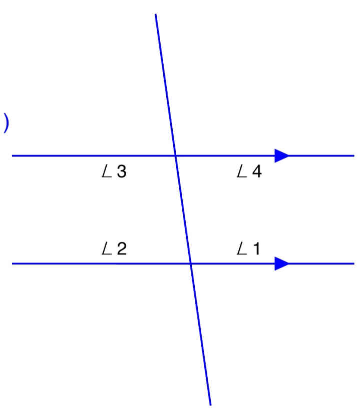
∠ 1 = 70°

∠ 2 = 110°

∠ 3 = 70°

∠ 4 = 110°

3)



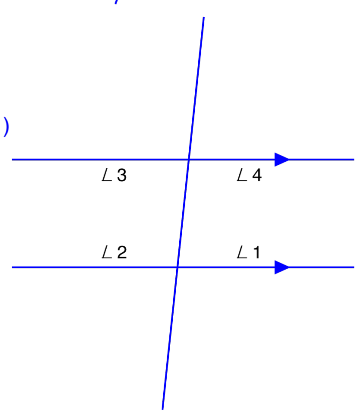
∠ 1 = 98°

∠ 2 = 82°

∠ 3 = 98°

∠ 4 = 82°

4)



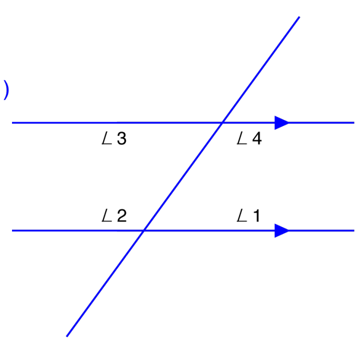
∠ 1 = 84°

∠ 2 = 96°

∠ 3 = 84°

∠ 4 = 96°

5)



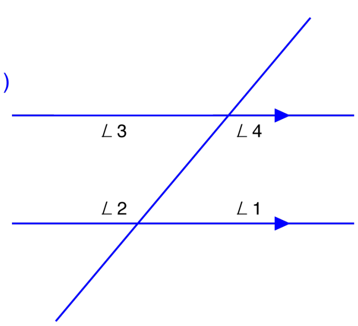
∠ 1 = 54°

∠ 2 = 126°

∠ 3 = 54°

∠ 4 = 126°

6)



∠ 1 = 50°

∠ 2 = 130°

∠ 3 = 50°

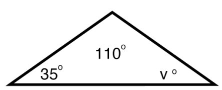
∠ 4 = 130°

ANSWERS :

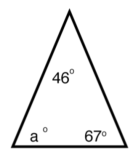
Intro Geometry
(Angles)

Triangle Angle Sum

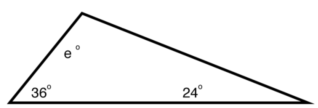
Solve for the given variable.

1) 

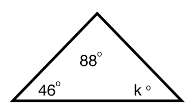
v = 35

5) 

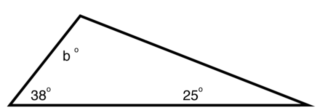
a = 67

2) 

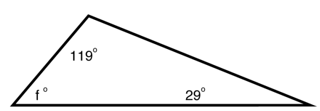
e = 120

6) 

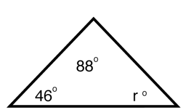
k = 46

3) 

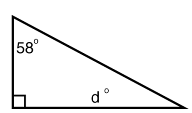
b = 117

7) 

f = 32

4) 

r = 46

8) 

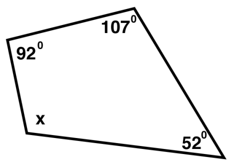
d = 32

ANSWERS :

Intro Geometry (Angles)

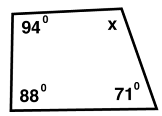
Find the measure of the missing angle.

1)



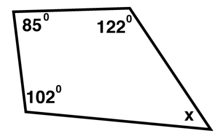
Solve for x 109^0

2)



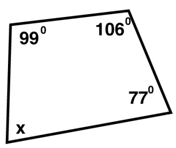
Solve for x 107^0

3)



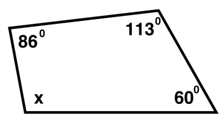
Solve for x 51^0

4)



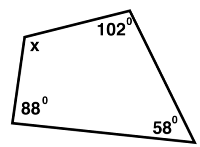
Solve for x 78^0

5)



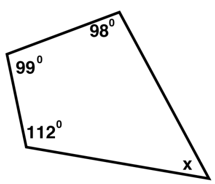
Solve for x 101^0

6)



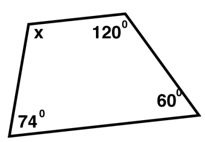
Solve for x 112^0

7)



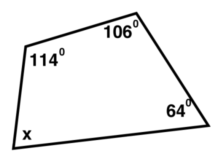
Solve for x 51^0

8)



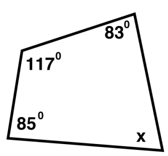
Solve for x 106^0

9)



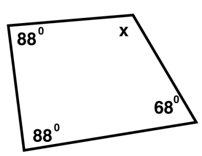
Solve for x 76^0

10)



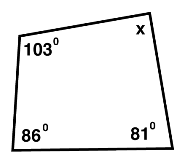
Solve for x 75^0

11)



Solve for x 116^0

12)



Solve for x 90^0

KEY CONCEPTS:

Learn the basic concepts of angles which measure the amount of turn in degrees (also radians for a later lesson).

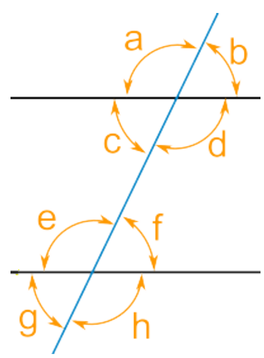
1. A full rotation around a circle is 360^o. Why 360? There are two plausible explanations. One is that the ancient Babylonians and Persians used a 360 day calendar and one degree was the amount the sun moved each day as it traced an annual circle across the sky. The other is that the Babylonians used a base 60 number system and they understood a hexagon was made up of 6 equilateral triangles rotated around a full circle so 360 was a natural multiple of their base counting.

2. Angles are categorized into the following groups.

a. **Acute** - less than 90^o
b. **Right** - exactly equal to 90^o
c. **Obtuse** - greater than 90^o and less than 180^o
d. **Straight** - exactly equal to 180^o
e. **Reflex** - greater than 180^o

3. There are three basic angle theorems critical for the exam.

a. **Supplementary Angles** (also known as angles along a line) sum to 180^o.
b. **Opposing Vertical Angles** are congruent (the same).
c. **Alternate Interior Angles** (related to transversals where two parallel lines are traversed by a third line) are congruent. e.g. c = f and d = e
Likewise, corresponding angles are congruent (e.g. g =c) and alternate exterior angles are congruent (e.g. a = h).



4. In conjunction with the above three theorems, the sum of interior angles of polygons (e.g. **triangles interior angles sum to 180^o and quadrilateral interior angles sum to 360^o**) is often key to finding missing angles on exam problems.

a. Equilateral triangles have the same side lengths and the same interior angle measures; 60^o.
b. Isosceles triangles have exactly two sides equal in length and two equal interior angles.
c. Scalene triangles have all different side lengths and different interior angle measures,