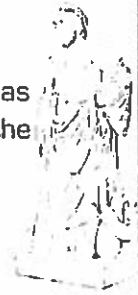


Rational and Irrational Numbers

The ancient Greeks discovered that some numbers cannot be represented as fractions. Rational numbers can; irrational numbers cannot. Express each of the numbers below as a fraction if you can. Label the numbers as rational or irrational.



1) π _____

2) 5 _____

3) $\sqrt{99}$ _____

4) $\sqrt{3}$ _____

5) $\sqrt{100}$ _____

6) $.333\bar{3}$ _____

7) $14/3$ _____

8) 1.5 _____

9) $.111\bar{1}$ _____

10) $\sqrt{2}$ _____

11) $\sqrt{9}$ _____

12) $\sqrt{-5}$ _____

Student Name: _____

Score: _____

Laws of Exponents Worksheet

Rewrite the following as single exponent using exponent rules:

Problems

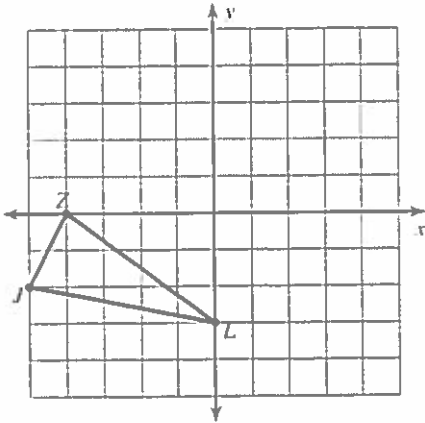
Work Space

$\frac{x^7 x^4}{x^5}$	
Answer:	
$\frac{(a^5 a^9)^{-5}}{a^{-15}}$	
Answer:	
$\left(\frac{m^{-3} m^{-7}}{(m^{-4})^{-3}}\right)^5$	
Answer:	
$\left(\frac{z^{-4}}{z^6} \times \frac{z^5}{z^{-6}}\right)^{-11}$	
Answer:	
$\frac{(d^4)^{-3}}{(d^6)^{-2}} \div \left(\frac{d^4}{d^6}\right)^{-8}$	
Answer:	

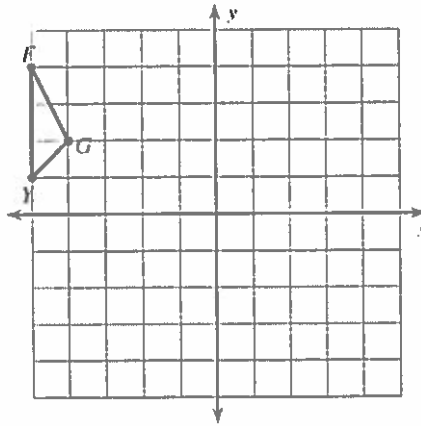
All Transformations

Graph the image of the figure using the transformation given.

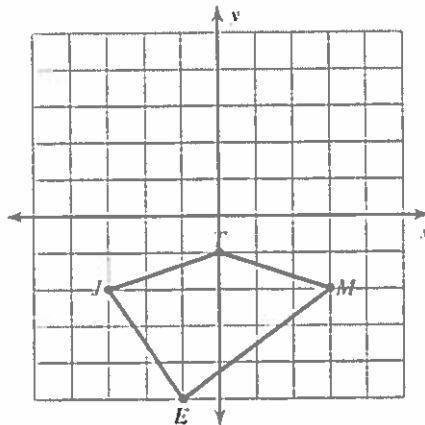
- 1) rotation 90° counterclockwise about the origin



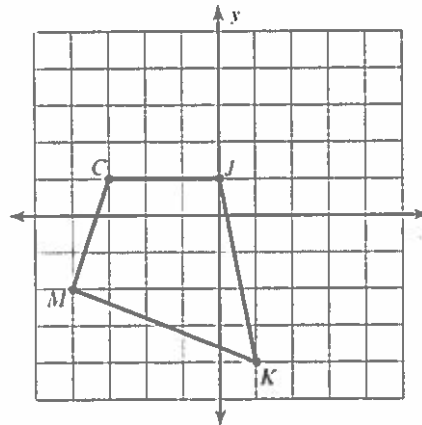
- 2) translation: 4 units right and 1 unit down



- 3) translation: 1 unit right and 1 unit up

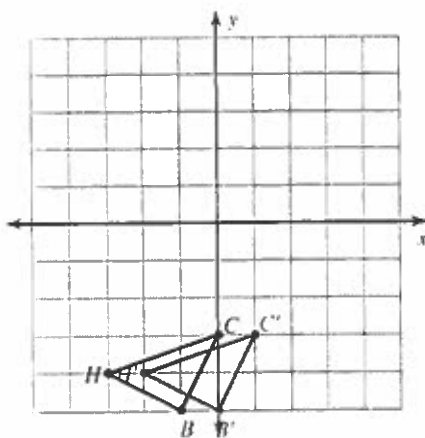


- 4) reflection across the x-axis

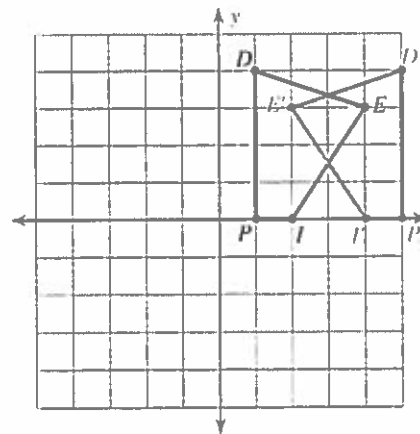


Write a rule to describe each transformation.

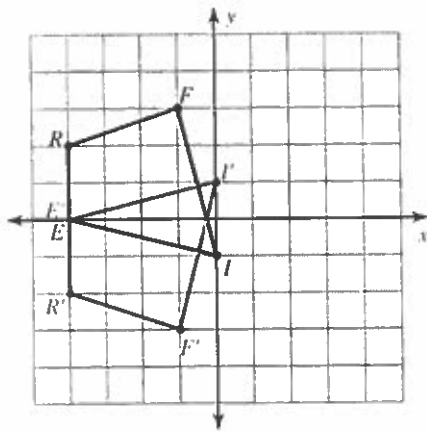
- 5)



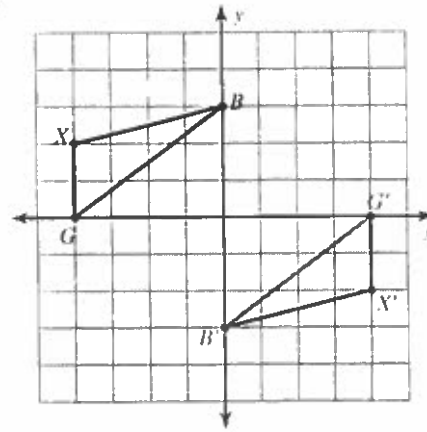
- 6)



7)

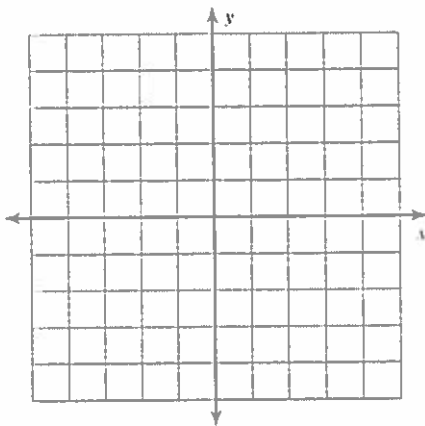


8)

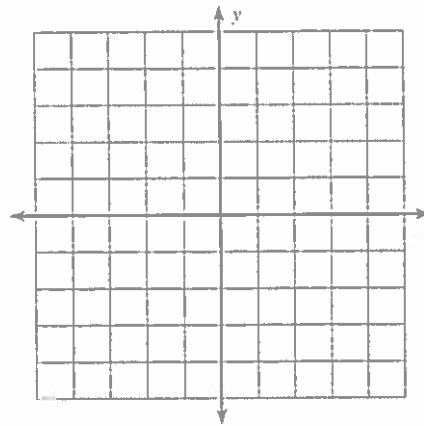


Graph the image of the figure using the transformation given.

- 9) rotation 90° clockwise about the origin
 $B(-2, 0)$, $C(-4, 3)$, $Z(-3, 4)$, $X(-1, 4)$



- 10) reflection across $y = x$
 $K(-5, -2)$, $A(-4, 1)$, $I(0, -1)$, $J(-2, -4)$



Find the coordinates of the vertices of each figure after the given transformation.

- 11) rotation 180° about the origin
 $E(2, -2)$, $J(1, 2)$, $R(3, 3)$, $S(5, 2)$

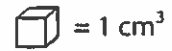
- 12) reflection across $y = 2$
 $J(1, 3)$, $U(0, 5)$, $R(1, 5)$, $C(3, 2)$

- 13) translation: 7 units right and 1 unit down
 $J(-3, 1)$, $F(-2, 3)$, $N(-2, 0)$

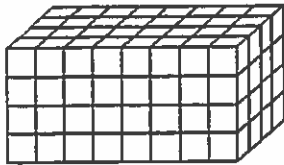
- 14) translation: 6 units right and 3 units down
 $S(-3, 3)$, $C(-1, 4)$, $W(-2, -1)$

Counting Cubes

Count the cubes and find the volume of each rectangular prism.

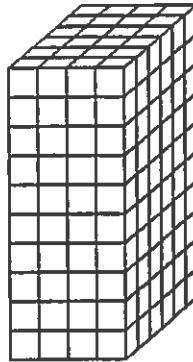


1)



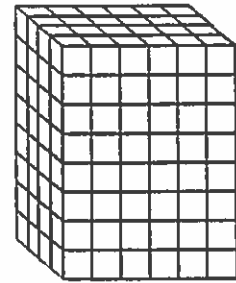
Volume = _____

2)



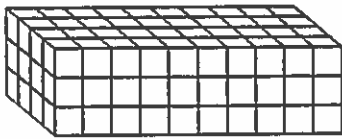
Volume = _____

3)



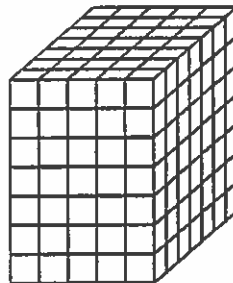
Volume = _____

4)



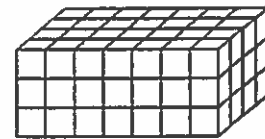
Volume = _____

5)



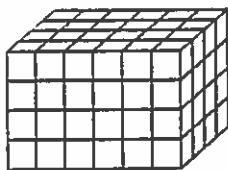
Volume = _____

6)



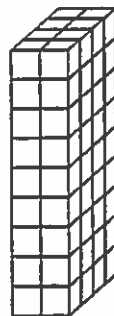
Volume = _____

7)

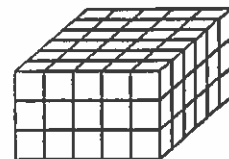


Volume = _____

8)



9)



Volume = _____

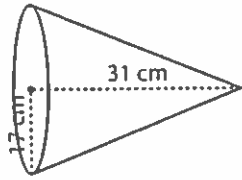
Name : _____

Score : _____

Volume - Cone

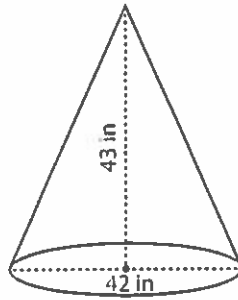
Find the volume of each cone. Round the answer to nearest tenth. (use $\pi = 3.14$)

1)



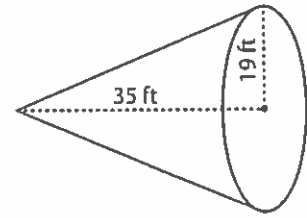
Volume = _____

2)



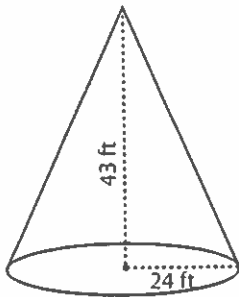
Volume = _____

3)



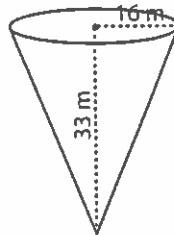
Volume = _____

4)



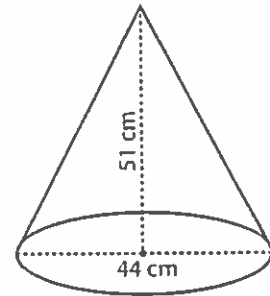
Volume = _____

5)



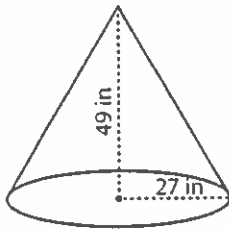
Volume = _____

6)



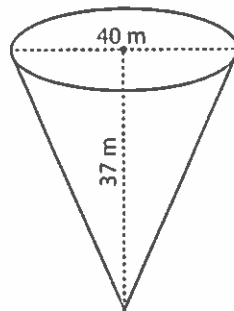
Volume = _____

7)



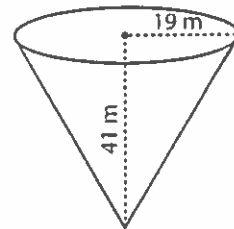
Volume = _____

8)



Volume = _____

9)



Volume = _____

10) A conical flask has a diameter of 20 centimeter and a height of 18 centimeter. Find the volume of air it can occupy.

Volume = _____

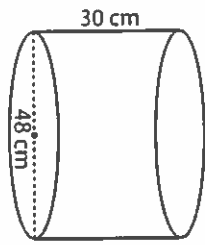
Name : _____

Score : _____

Volume - Cylinder

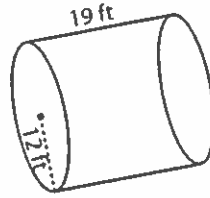
Find the volume of each cylinder. (use $\pi = 3.14$)

1)



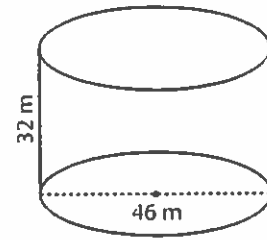
Volume = _____

2)



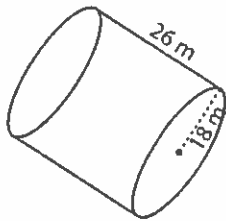
Volume = _____

3)



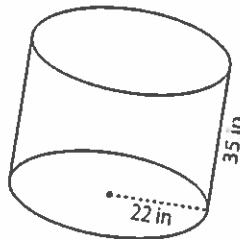
Volume = _____

4)



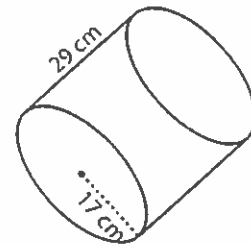
Volume = _____

5)



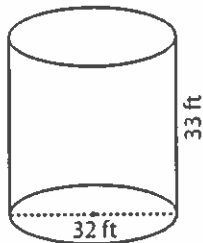
Volume = _____

6)



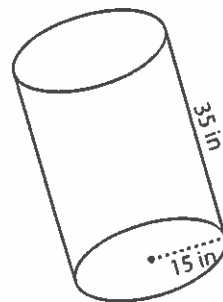
Volume = _____

7)



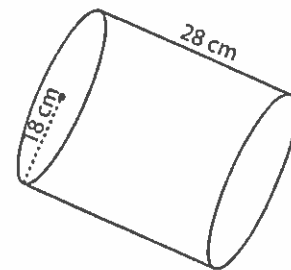
Volume = _____

8)



Volume = _____

9)



Volume = _____

10) A cylindrical container has a radius of 25 inches and a height of 31 inches. What is the volume of the container?

Volume = _____

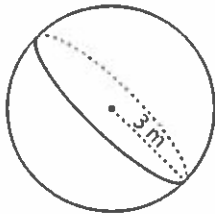
Name : _____

Score : _____

Volume - Sphere & Hemisphere

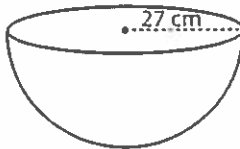
Find the exact volume of each shape.

1)



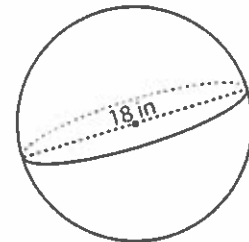
Volume = _____

2)



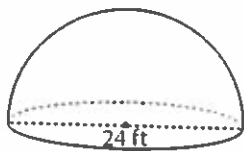
Volume = _____

3)



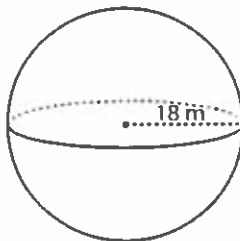
Volume = _____

4)



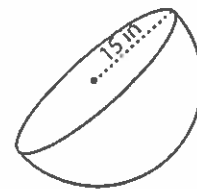
Volume = _____

5)



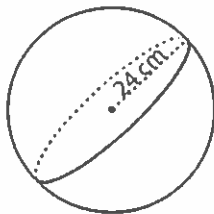
Volume = _____

6)



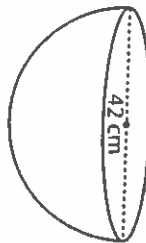
Volume = _____

7)



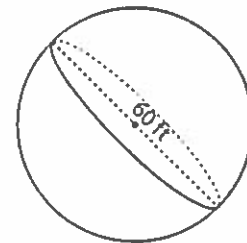
Volume = _____

8)



Volume = _____

9)



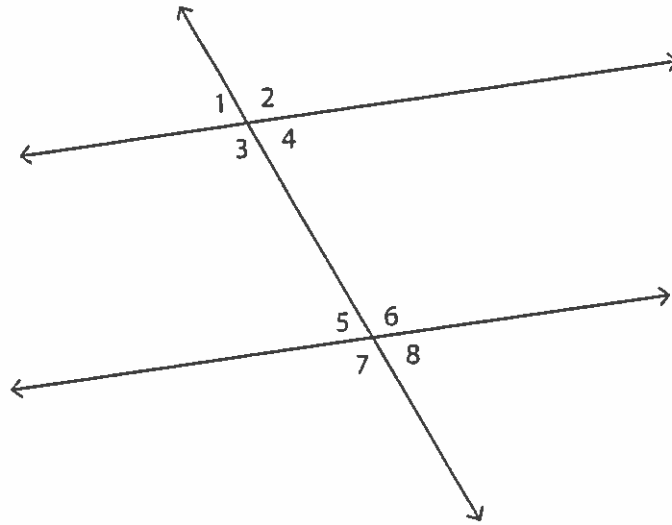
Volume = _____

10) A spherical ball has a radius of 6 centimeter. Calculate the volume of the ball.

Volume = _____

Angle Relationship

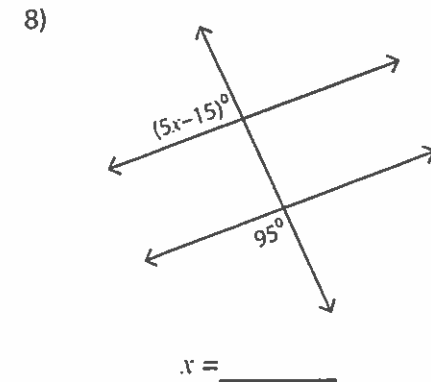
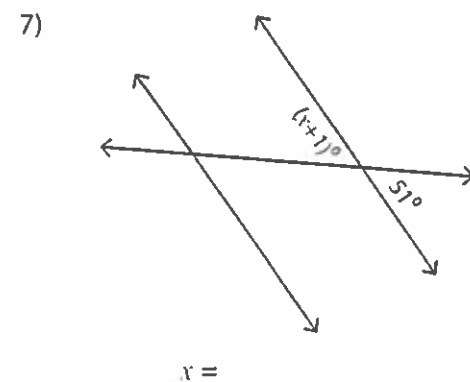
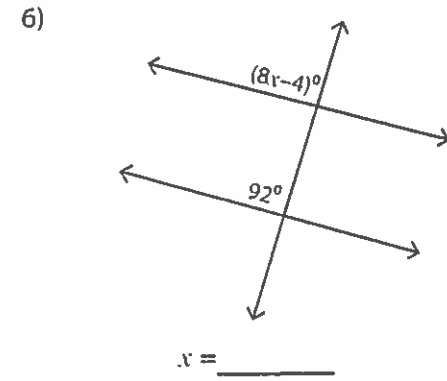
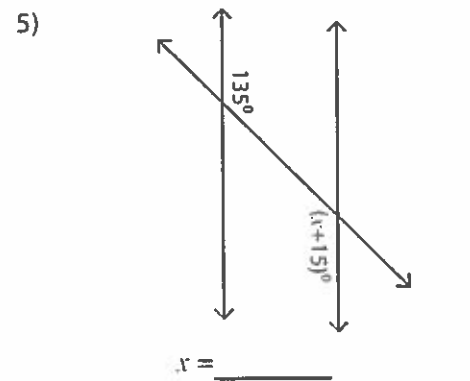
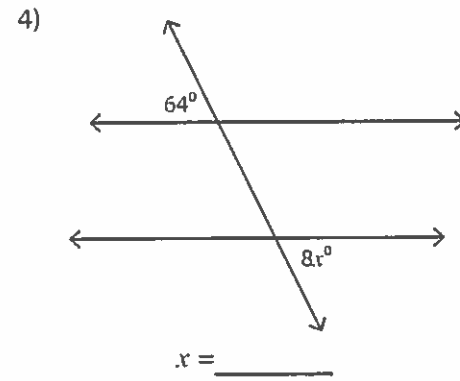
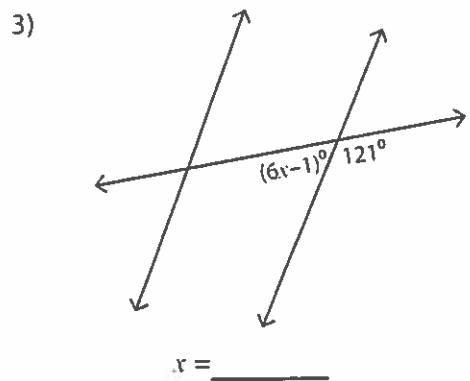
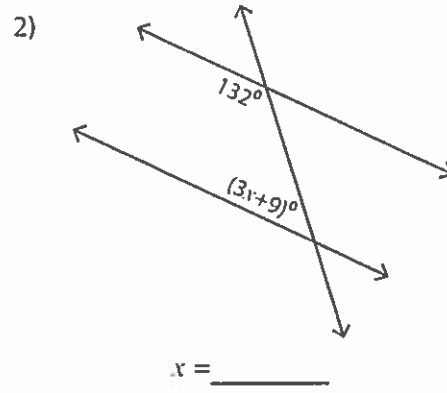
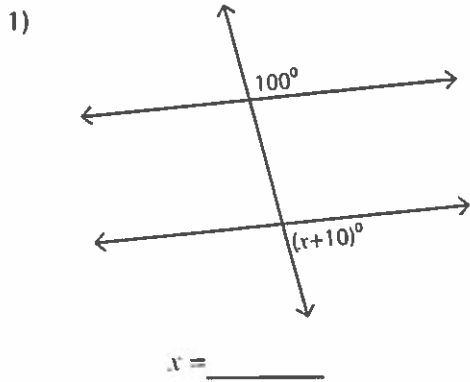
Write the angle relationship for each pair of angles.



- 1) $\angle 1$ and $\angle 4$ are _____
- 2) $\angle 2$ and $\angle 7$ are _____
- 3) $\angle 4$ and $\angle 8$ are _____
- 4) $\angle 3$ and $\angle 5$ are _____
- 5) $\angle 6$ and $\angle 8$ are _____
- 6) $\angle 1$ and $\angle 7$ are _____
- 7) $\angle 3$ and $\angle 6$ are _____
- 8) $\angle 1$ and $\angle 3$ are _____
- 9) $\angle 2$ and $\angle 6$ are _____
- 10) $\angle 6$ and $\angle 7$ are _____

Angles in Transversal

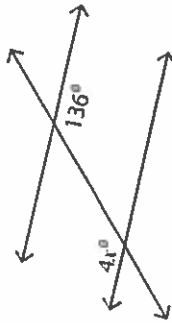
Find the value of x .



Interior Angles

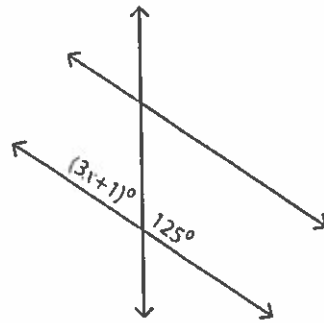
Find the value of x .

1)



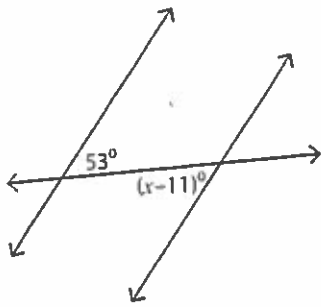
$x =$ _____

2)



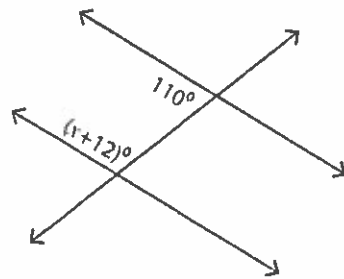
$x =$ _____

3)



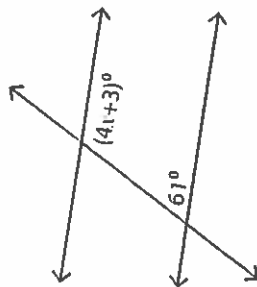
$x =$ _____

4)



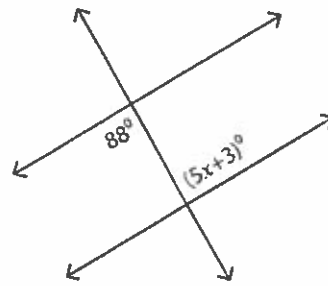
$x =$ _____

5)



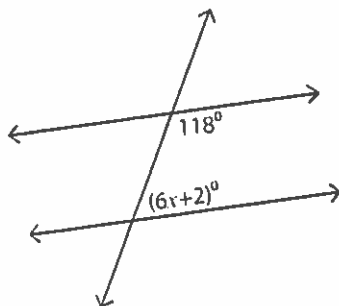
$x =$ _____

6)



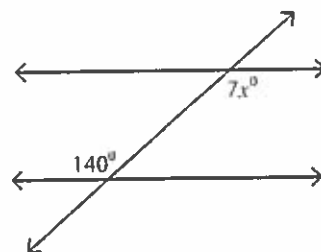
$x =$ _____

7)



$x =$ _____

8)



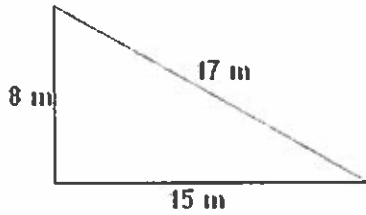
$x =$ _____

Student Name: _____

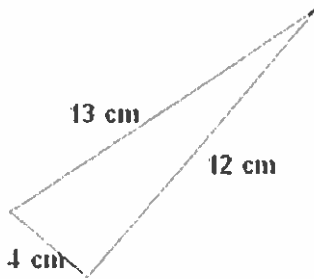
Score: _____

Is it Right Angled Triangle?

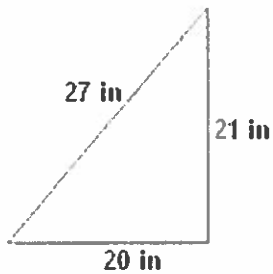
Check whether the given triangles are right angled triangle using Pythagorean rule:
Work Space



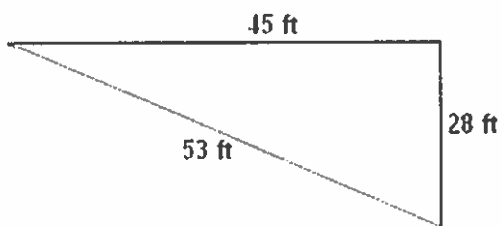
Answer:



Answer:



Answer:



Answer:

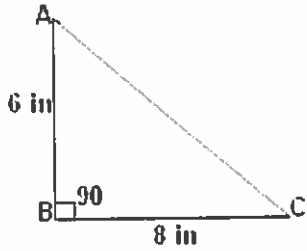
Student Name: _____

Score: _____

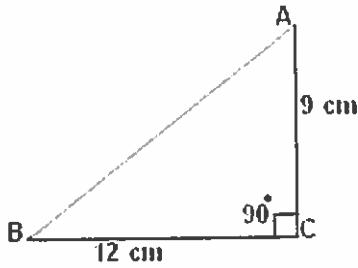
Find the Missing Side

Find the missing side of the right triangle using Pythagorean Theorem:

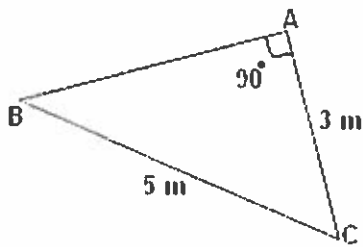
Work Space



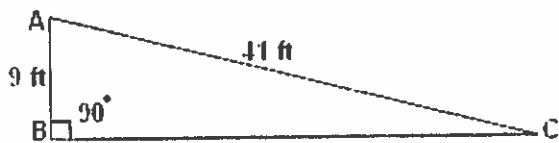
Length of AC= _____



Length of AB= _____



Length of AB= _____



Length of BC= _____

Scientific Notation**Example:**

Write 324170 in scientific notation.



3 2 4 1 7 0.

We should move the decimal point 5 places to the left. So, the exponent will be 5.

$$324,170 = 3.2417 \times 10^5$$

Express each number in scientific notation.

1) 2,343,600 = _____

2) 512,420,000 = _____

3) 4,600,000,000,000 = _____

4) 725,000,000 = _____

5) 120,000,000,000,000 = _____

6) 100,180,000,000 = _____

7) 81,000,000 = _____

8) 14,752,000,000 = _____

9) 29,540,000,000,000 = _____

10) 6,241,000,000 = _____

Scientific Notation**Example:**

Write 5.21236×10^5 in standard notation.

Here the exponent is 5. We should move the decimal point 5 places to the right.

5.21236

$$5.21236 \times 10^5 = 521,236$$

Express each number in standard notation.

1) 3.6212×10^8 = _____

2) 1.345×10^5 = _____

3) 4.62×10^{10} = _____

4) 7.2×10^7 = _____

5) 2.853×10^{12} = _____

6) 8.5925×10^9 = _____

7) 1.24×10^5 = _____

8) 5.019×10^8 = _____

9) 62.025×10^{11} = _____

10) 2.4×10^6 = _____

Scientific Notation

Example:

Write 0.00000285 in scientific notation.

We should move the decimal point 6 places to the right. So, the exponent will be -6.



$$0.00000285 = 2.85 \times 10^{-6}$$

Express each number in scientific notation.

1) 0.0000261 = _____

2) 0.0000005724 = _____

3) 0.00000312 = _____

4) 0.00000000100 = _____

5) 0.000000000000059 = _____

6) 0.0000000007 = _____

7) 0.0000000088 = _____

8) 0.00000020 = _____

9) 0.000000000000176 = _____

10) 0.000002905 = _____

Scientific Notation

Example: 1

Write 514,223 in scientific notation.

We should move the decimal point 5 places to the left. So, the exponent will be 5.

$$514,223 = 5.14223 \times 10^5$$

Example: 2

Write 0.0000083 in scientific notation.

We should move the decimal point 6 places to the right. So, the exponent will be -6.

$$0.0000083 = 8.3 \times 10^{-6}$$

Express each number in scientific notation.

1) 18,451,000 = _____

2) 0.000004826 = _____

3) 5,820,000,000,000 = _____

4) 0.000000007269 = _____

5) 350,100,000,000,000 = _____

6) 0.00000000000014 = _____

7) 71,300,000 = _____

8) 0.00000002164 = _____

9) 30,000,000,000,000 = _____

10) 0.0000642 = _____

Scientific Notation

Example: 1

Write 4.32215×10^5 in standard notation.

Here the exponent is 5. We should move the decimal point 5 places to the right.

$$4.32215 \times 10^5 = 432,215$$

Example: 2

Write 3.7×10^{-6} in standard notation.

Here the exponent is -6. We should move the decimal point 6 places to the left.

$$3.7 \times 10^{-6} = 0.000037$$

Express each number in standard notation.

1) 4.62×10^8 = _____

2) 1.2561×10^{-5} = _____

3) 9.082×10^{11} = _____

4) 5.4×10^{-7} = _____

5) 3.5624×10^{13} = _____

6) 7.5005×10^{-12} = _____

7) 1.28×10^8 = _____

8) 2.119×10^{-10} = _____

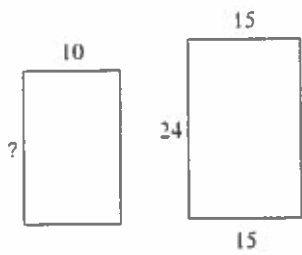
9) 8.0025×10^6 = _____

10) 3.1×10^{-9} = _____

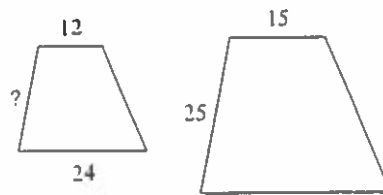
Using Similar Polygons

The polygons in each pair are similar. Find the missing side length.

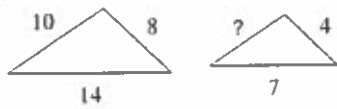
1)



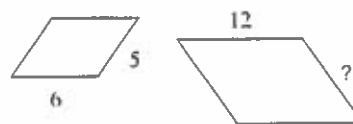
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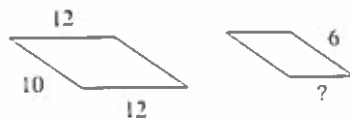
3)



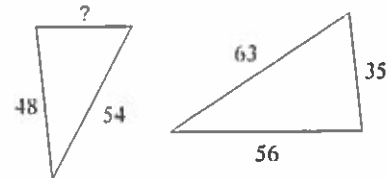
4)



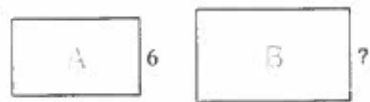
5)



6)

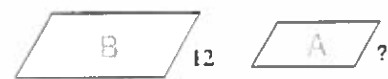


7)



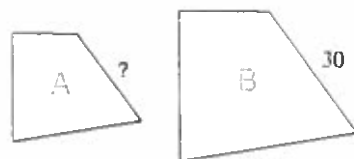
scale factor from A to B = 2 : 7

8)



scale factor from A to B = 2 : 3

9)



scale factor from A to B = 5 : 6

10)



scale factor from A to B = 1 : 7

11)

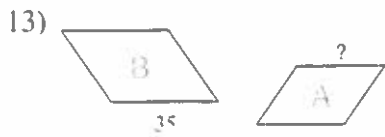


scale factor from A to B = 2 : 3

12)



scale factor from A to B = 1 : 2

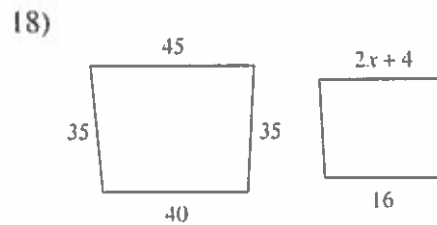
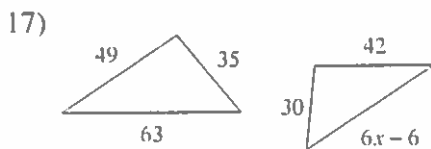
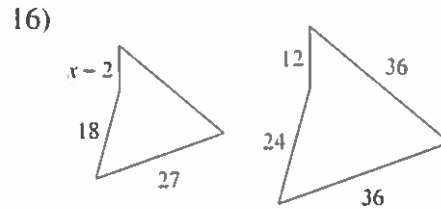
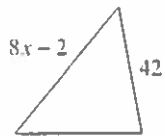
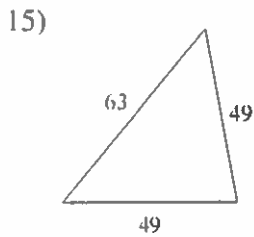


scale factor from A to B = 6 : 7

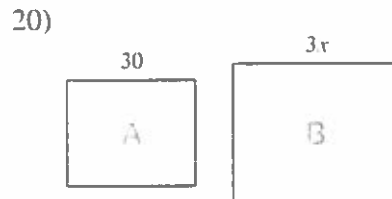


scale factor from A to B = 1 : 3

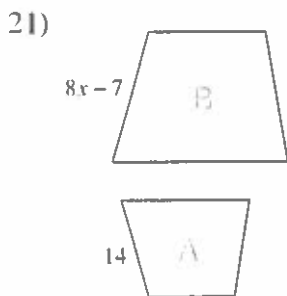
Solve for x . The polygons in each pair are similar.



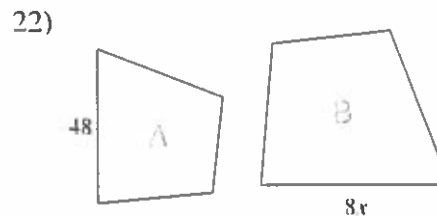
scale factor from A to B = 5 : 6



scale factor from A to B = 5 : 6



scale factor from A to B = 2 : 7



scale factor from A to B = 6 : 7