Customary Units

1 ft = 12 in	1 c = 8 Fl. oz	1 lb = 16 oz
1 yd = 3 ft	1 pt = 2 c	1 T = 2,000 lb
1 mi = 5,280 ft	1 qt = 2 pt	
1 mi = 1,760 yd	1 gal = 4 qt	

1) 12 ft = ? yd

$$\frac{12\ \text{ft}}{1} \cdot \frac{1\ \text{yd}}{3\ \text{ft}} = \boxed{4\ \text{yd}}$$

2) 7 gal = ? qt

$$\frac{7\ \text{gal}}{1} \cdot \frac{4\ \text{qt}}{1\ \text{gal}} = \boxed{28\ \text{qt}}$$

3) 3.75 T = ? lb

$$\frac{3.75\ \text{T}}{1} \cdot \frac{2{,}000\ \text{lb}}{1\ \text{T}} = \boxed{7{,}500\ \text{lb}}$$

4) 4,752 yd = ? mi

$$\frac{4{,}752\ \text{yd}}{1} \cdot \frac{1\ \text{mi}}{1{,}760\ \text{yd}} = \boxed{2.7\ \text{mi}}$$

Customary ⟷ Metric

1 in = 2.54 cm	1 m = 39.37 in
1 mi = 1.609 km	1 km = .62 mi
1 lb = .454 kg	1 kg = 2.2 lb
1 gal = 3.785 L	1 L = .264 gal

Convert each measurement. Round to the nearest tenth.

1) 8.2 lb = ? kg

$$\frac{8.2\,\text{lb}}{1} \cdot \frac{.454\,\text{kg}}{1\,\text{lb}} = \boxed{3.7\,\text{kg}}$$

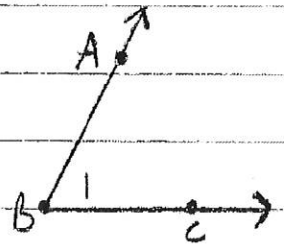
2) 2.8 gal = ? L

$$\frac{2.8\,\text{gal}}{1} \cdot \frac{1\,\text{L}}{.264\,\text{gal}} = \boxed{10.6\,\text{L}}$$

3) 48.9 km = ? mi

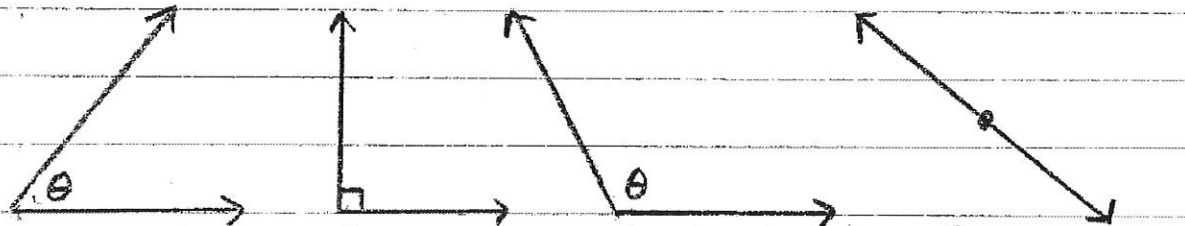
$$\frac{48.9\,\text{km}}{1} \cdot \frac{1\,\text{mi}}{1.609\,\text{km}} = \boxed{30.4\,\text{mi}}$$

Angle Relationships

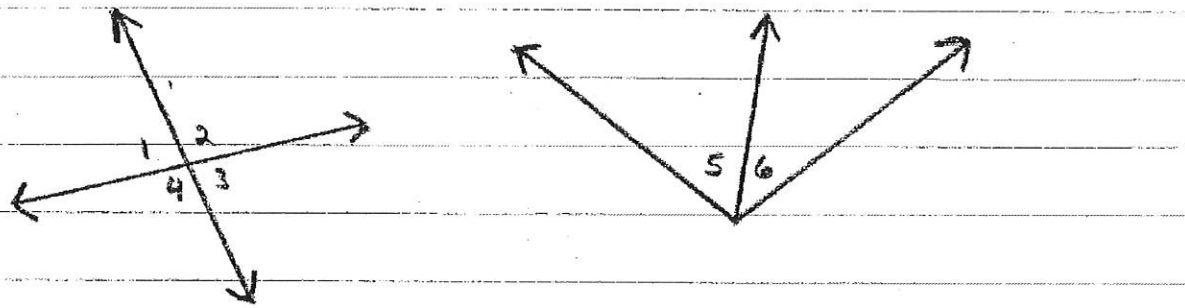


Names: $\angle ABC$, $\angle CBA$, $\angle B$, $\angle 1$

Types of Angles



Acute Angle	Right Angle	Obtuse Angle	Straight Angle
$0° < \theta < 90°$	$\theta = 90°$	$90° < \theta < 180°$	$\theta = 180°$



Vertical Angles

$\angle 1 \cong \angle 3$

$\angle 2 \cong \angle 4$

↑ Congruent

Adjacent Angles (Share a side and vertex)

$\angle 5, \angle 6$

$\angle 1, \angle 2$

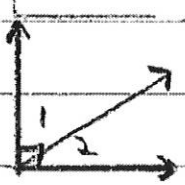
$\angle 3, \angle 4$

$\angle 2, \angle 3$

$\angle 1, \angle 4$

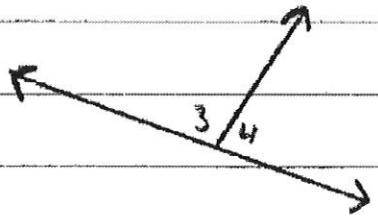
Complementary and Supplementary Angles

Complementary



$m\angle 1 + m\angle 2 = 90°$

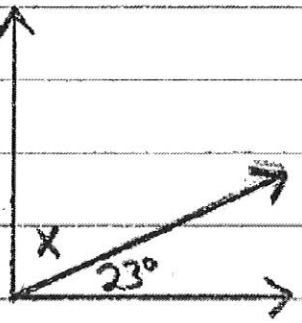
Supplementary



$m\angle 3 + m\angle 4 = 180°$

Find the value of the missing angle.

1)

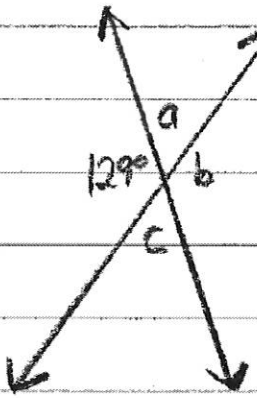


$x + 23 = 90$

$-23 \quad -23$

$\boxed{x = 67°}$

2)



$a + 129 = 180$

$-129 \quad -129$

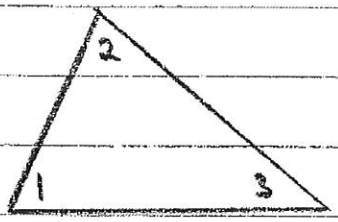
$\boxed{a = 51°}$

$c = a$

$\boxed{c = 51°}$

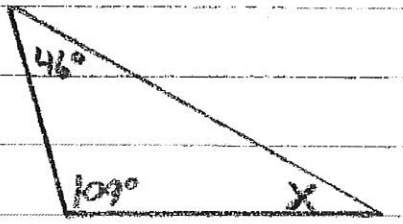
$\boxed{b = 129°}$

Triangles



$m\angle 1 + m\angle 2 + m\angle 3 = 180°$

Find the $m\angle X$.



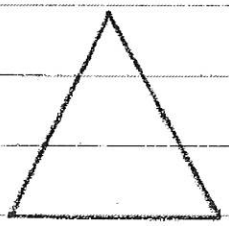
$X + 46 + 109 = 180$

$X + 155 = 180$

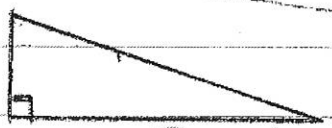
$-155 \quad -155$

$\boxed{X = 25°}$

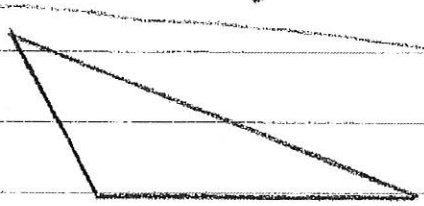
Classify Triangles (Angles)



Acute Triangle
3 Acute Angles



Right Triangle
1 Right Angle
2 Acute Angles

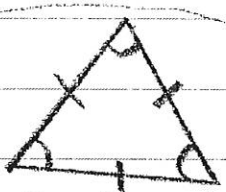


Obtuse Triangle
1 Obtuse Angle, 2 Acute Angles

Classify Triangles (Sides)

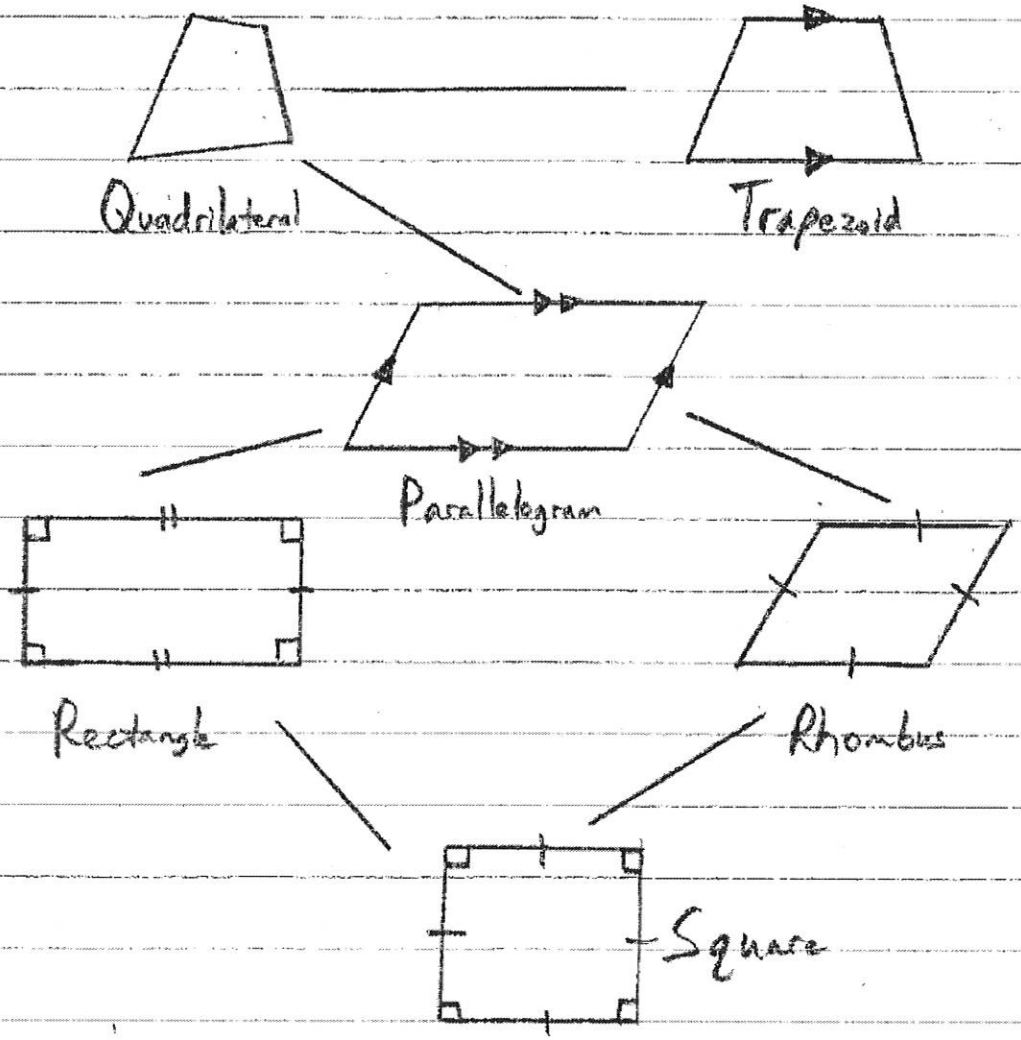
Scalene
No Congruent Sides

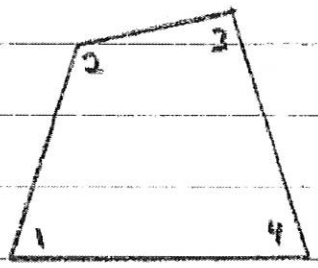
Isosceles Triangle
2 Congruent Sides and Angles



Equilateral Triangle
All 3 sides and angles are $\cong$

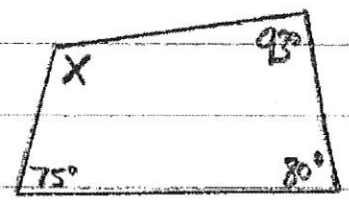
Quadrilaterals





$m\angle 1 + m\angle 2 + m\angle 3 + m\angle 4 = 360°$

Find the missing angle measure.



$75 + 80 + 93 = 248$

$X = 360 - 248 = \boxed{112°}$

Estimating Square Roots

$1 \rightarrow \sqrt{1} = 1$	$121 \rightarrow \sqrt{121} = 11$
$4 \rightarrow \sqrt{4} = 2$	$144 \rightarrow \sqrt{144} = 12$
$9 \rightarrow \sqrt{9} = 3$	$169 \rightarrow \sqrt{169} = 13$
$16 \rightarrow \sqrt{16} = 4$	$196 \rightarrow \sqrt{196} = 14$
$25 \rightarrow \sqrt{25} = 5$	$225 \rightarrow \sqrt{225} = 15$
$36 \rightarrow \sqrt{36} = 6$	$256 \rightarrow \sqrt{256} = 16$
$49 \rightarrow \sqrt{49} = 7$	$289 \rightarrow \sqrt{289} = 17$
$64 \rightarrow \sqrt{64} = 8$	$324 \rightarrow \sqrt{324} = 18$
$81 \rightarrow \sqrt{81} = 9$	$361 \rightarrow \sqrt{361} = 19$
$100 \rightarrow \sqrt{100} = 10$	$400 \rightarrow \sqrt{400} = 20$

1 Estimate the $\sqrt{75}$.

$\sqrt{64} < \sqrt{75} < \sqrt{81}$

$8 < \sqrt{75} < 9$

$\sqrt{75} \approx 9$

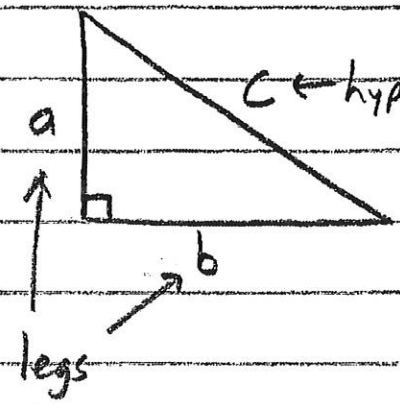
2 Estimate the $\sqrt{330}$.

$\sqrt{324} < \sqrt{330} < \sqrt{361}$

$18 < \sqrt{330} < 19$

$\sqrt{330} \approx 18$

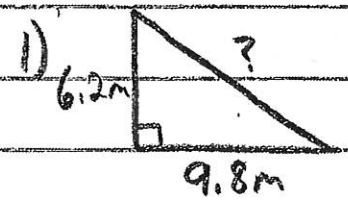
The Pythagorean Theorem



$$c^2 = a^2 + b^2$$

Find the missing measure of each triangle. Round to the nearest tenth.

1)



$c^2 = a^2 + b^2$

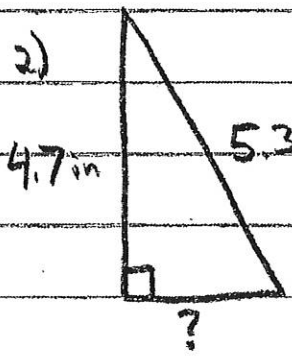
$c^2 = 6.2^2 + 9.8^2$

$c^2 = 38.44 + 96.04$

$\sqrt{c^2} = \sqrt{134.48}$

$\boxed{c = 11.6\text{m}}$

2)



$c^2 = a^2 + b^2$

$5.3^2 = a^2 + 4.7^2$

$28.09 = a^2 + 22.09$

$-22.09 \quad -22.09$

$\sqrt{6.00} = \sqrt{a^2}$

$\boxed{2.4\text{in} = a}$