Completed Exercises from the lecture on

$\langle$ Lines, Angles & Triangles $\rangle$

L. Hard, Pages 2-6;

Can be found below.

Hard

(1) **e10d8313** [SHORT ANSWER] [Case-Insensitive]

P Q R S T V

$48°$ $39°$ $46°$ $234°$ $18°$ $162°$

$95°$

$86°$ $85°$

W

X

U

$?$
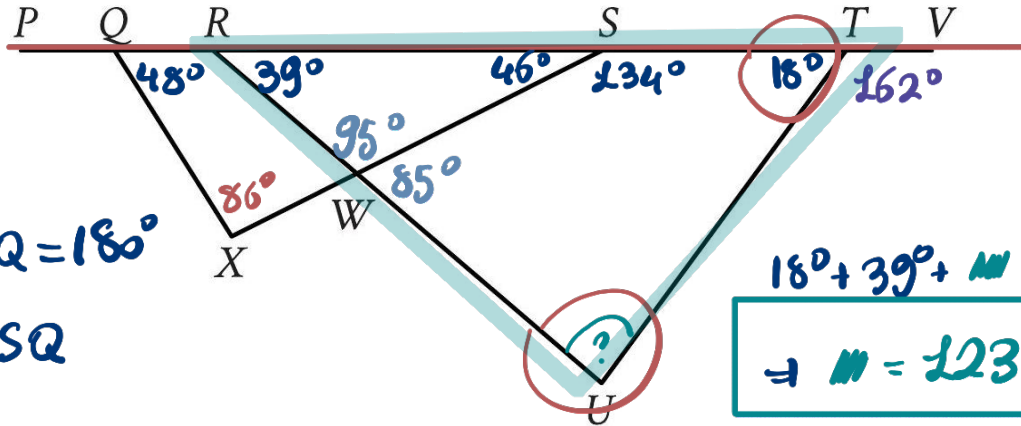
$\triangle QXS$:

$$48° + 86° + \angle XSQ = 180°$$

$$\Rightarrow 46° = \angle XSQ$$

$$18° + 39° + m = 180°$$

$$\Rightarrow m = 123°$$

Note: Figure not drawn to scale. In the figure shown, points $Q, R, S,$ and T lie on line segment PV, and line segment RU intersects line segment SX at point W. The measure of $\angle SQX$ is 48°, the measure of $\angle SXQ$ is 86°, the measure of $\angle SWU$ is 85°, and the measure of $\angle VTU$ is 162°. What is the measure, in degrees, of $\angle TUR$?

1.
$x°$ $y°$ $z°$

$$x° + y° + z° = 180°$$

$360°$

2.
$x°$ $y°$

$$x° + y° = 180°$$

$180°$

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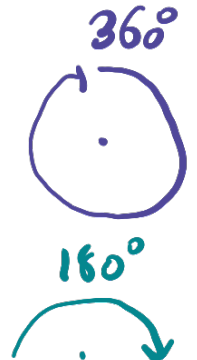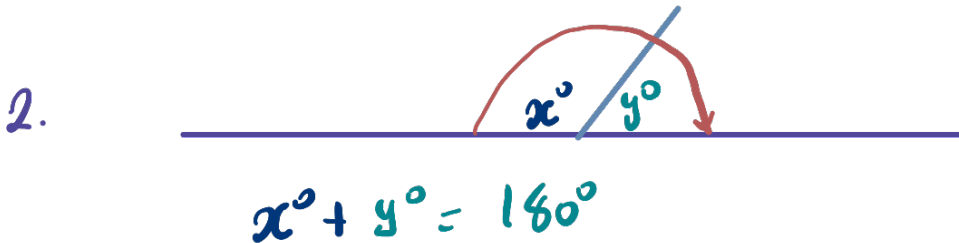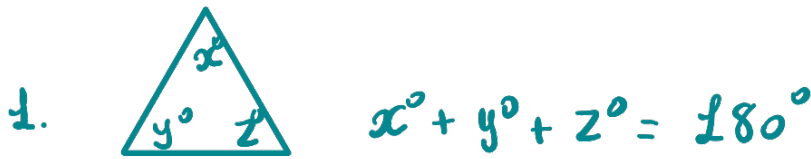
(2) **f88f27e5** SHORT ANSWER   Case-Insensitive

$x + \blacksquare = 180°$
$\Rightarrow x + 83° = 180°$
$\Rightarrow x = 97°$
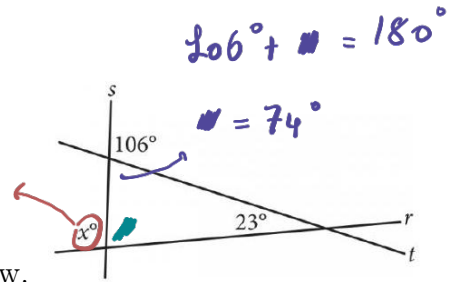
Intersecting lines r, s, and t are shown below.

What is the value of x ?

$\boxed{97°}$

$106° + \blacksquare = 180°$

$\blacksquare = 74°$

s

$106°$

$23°$ r

t

$x°$

$\triangle$: $\blacksquare + 23° + \blacksquare = 180°$

$\Rightarrow 74° + 23° + \blacksquare = 180°$

$\Rightarrow \blacksquare = 83°$

N   Q

122°
60° 60°
120°

~50°

M   R
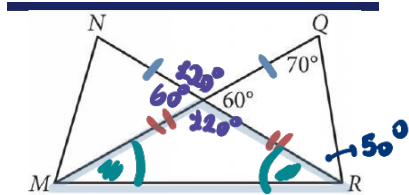
In the figure above, $\overline{MQ}$ and $\overline{NR}$ intersect at point P, $NP = QP$, and $MP = PR$. What is the measure, in degrees, of $\angle QMR$? (Disregard the degree symbol when gridding your answer.)
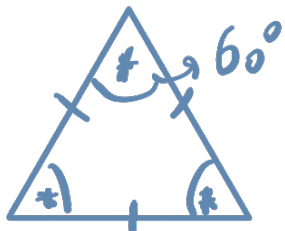
$$120° + x° + x° = 180°$$

$$\boxed{x° = 30°}$$

isoceles

$\triangle ABC \cong \triangle DEF \qquad AB = DE$

congruent

60°

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equilateral

In the figure above, what is the length of $\overline{NQ}$?

    a. 2.2
    b. 2.3
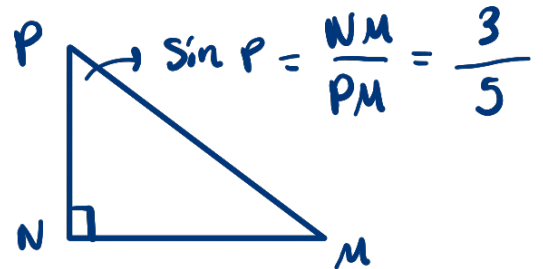   c. 2.4
    d. 2.5

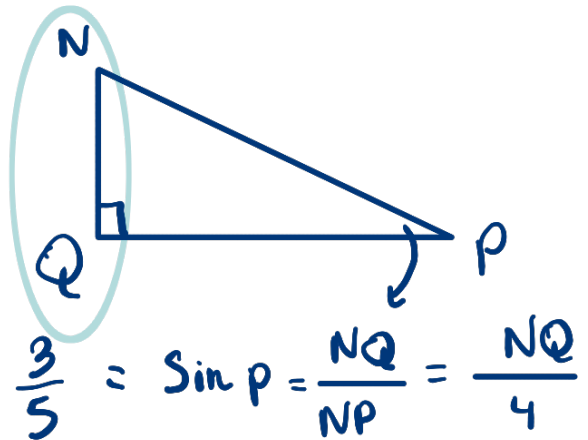**Similarity**

$$\times \frac{4}{5}$$
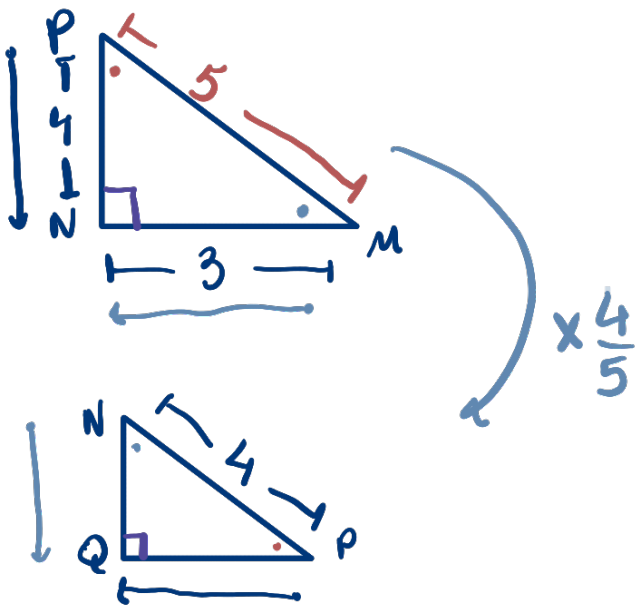
$$\overline{NM} \times c = \overline{NQ}$$

$$3 \times \frac{4}{5} = \overline{NQ} = 2.4$$

Trigonometric Ratios …

$$\sin P = \frac{NM}{PM} = \frac{3}{5}$$

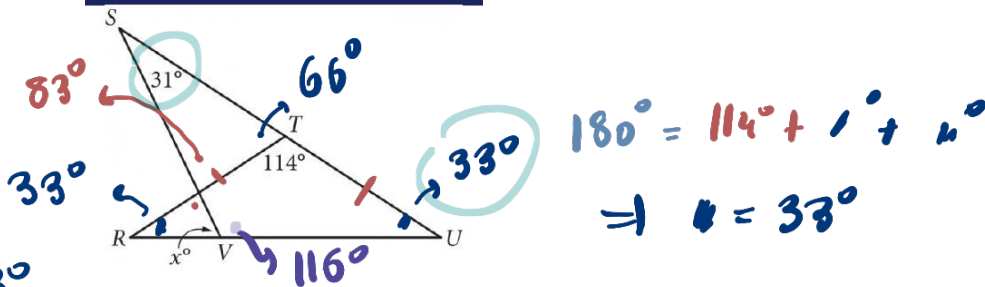$$\frac{3}{5} = \sin P = \frac{NQ}{NP} = \frac{NQ}{4}$$

$$\rightarrow NQ = 4 \cdot \frac{3}{5} = \frac{12}{5}$$

$$\sin P = \frac{opp}{hyp} = \frac{3}{5}$$

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(5) **bd7f6e30** | MULTIPLE CHOICE | | One answer only |

S
31°
83°
33°
66°
T
114°
33°
R
x° V
U
116°

$180° = 114° + 1° + u°$
$\Rightarrow u = 33°$

In the figure above, $RT = TU$. What is the value of x ?

$x = 180° - 33°$
$- 83°$

$= 64°$

$= 180° - 116°$

a. 66
b. 64
c. 58
d. 72

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