① Expand & Simplify

a) $-3(8a-3b)+5(2b-3a)=$

$-24a+9b+10b-15a = -39a+19b$

b) $(-3x+8y)(x-2y) = -3x^2+6xy+8xy-16y^2$

$= -3x^2+14xy-16y^2$

② Solve linear equation

a) $4(x-5)-3(2x-2) = 8$

$4x-20-6x+6 = 8$

$-2x-14 = 8$

$-2x = 8+14$

$-2x = 22$

$x = -11$

b) $\frac{4x+12}{3} - \frac{x}{5} = 0$

$\frac{4x+12}{3} = \frac{x}{5}$

$5(4x+12) = 3x$

$20x+60 = 3x$

$17x = -60$

$x = -\frac{60}{17}$

$x = -3\frac{9}{17}$

c) $\left(\frac{2x-3}{4}\right)_{\times 12} - \left(\frac{3x+1}{3}\right)_{\times 12} = \left(\frac{5-2x}{6}\right)_{\times 12}$

$3(2x-3) - 4(3x+1) = 2(5-2x)$

$6x - 9 - 12x - 4 = 10 - 4x$

$6x - 12x + 4x = 10 + 9 + 4$

$-2x = 23$

$x = \frac{23}{-2} = -11\frac{1}{2}$

③ When 5 is subtracted from twice a number, the result is 15 more than the original number. Find the square of the number.

Let's say, a number $= x$

wrong $\cancel{5 - 2x = 15 + x}$?

$2x - 5 = 15 + x$

$2x - x = 15 + 5$

$x = 20$

$x^2 = 20^2 = 400$

④ Given $\underbrace{f(x)}_{y} = 4x - 6$.

a) If the $\underbrace{\text{domain}}_{x}$ is $-\frac{3}{2}$, find the $\underbrace{\text{value of } f(x)}_{y}$!

$y = 4x - 6$

$y = 4\left(-\frac{3}{2}\right) - 6$

$y = -6 - 6 = -12$

b) If domain are $-1 \leq x \leq 3$, find y!

$y = 4x - 6$

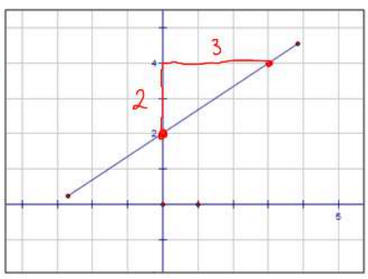
x	-1	0	1	2	3
y	-10	-6	-2	2	6

c) If the value of the function is 16, find its domain.

$$y = 4x - 6$$
$$16 = 4x - 6$$
$$22 = 4x \longrightarrow x = \frac{22}{4} = 5\frac{1}{2}$$

5

a)



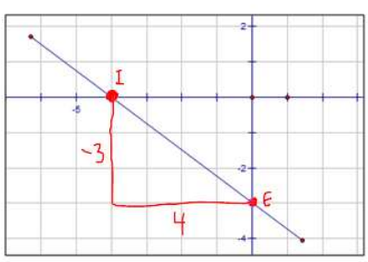
$m = \frac{\text{rise}}{\text{run}} = \frac{2}{3}$

y intercept = 2

equation $y = mx + c$

$y = \frac{2}{3}x + 2$

b)

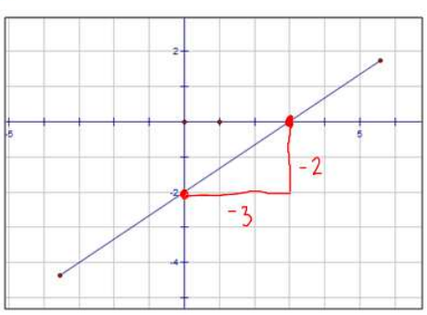


$m = \frac{-3}{4}$

y intercept = -3

equation = $y = -\frac{3}{4}x - 3$

c)

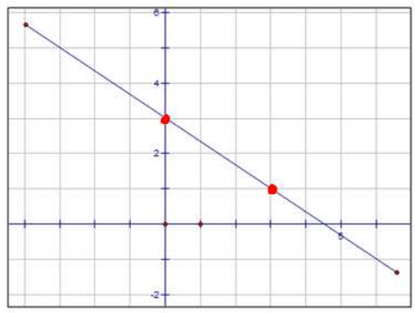


$m = \frac{-2}{-3} = \frac{2}{3}$

y intercept = -2

equation: $y = \frac{2}{3}x - 2$

d)



$m = \frac{-2}{3}$

y intercept = 3

equation : $y = -\frac{2}{3}x + 3$

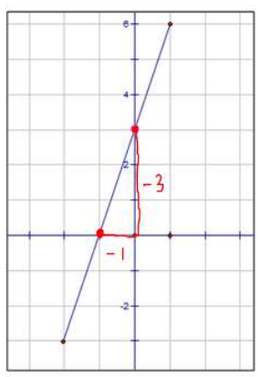
$ax + by = c$

$\left(y = -\frac{2}{3}x + 3\right) \times 3$

$3y = -2x + 9$

$2x + 3y = 9$

e)



$m = \frac{-3}{-1} = 3$

y intercept = 3

equation : $y = 3x + 3$

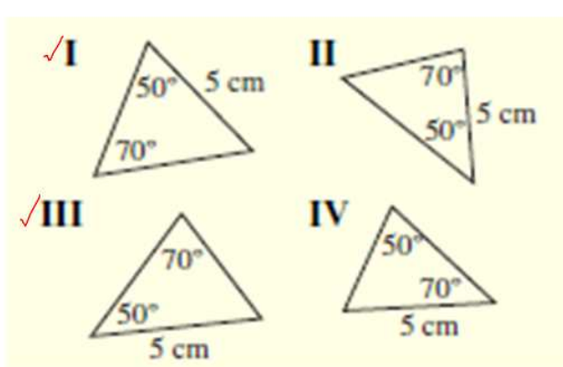
OR

$-3x + y = 3$

OR

$3x - y = -3$

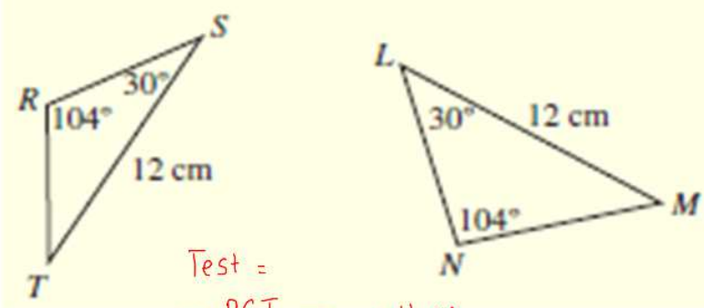
6 Draw 2 Congruent △s



test = AAS / SAA ~~ASA?~~

7 **Which congruent triangle test can be used to prove ~~that~~ ?**

Name the pair of congruent Δs !

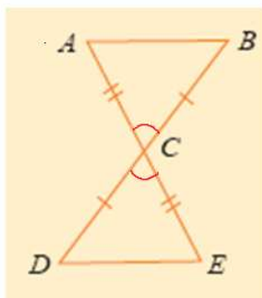


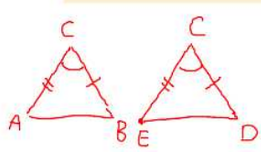
Test =

Δ RST ≡ Δ NLM

8 Name the pair of congruent Δ & State the test.

a)

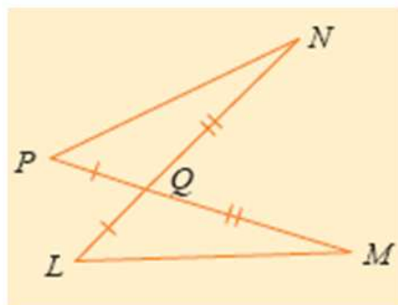




SAS

Δ ABC ≡ Δ EDC

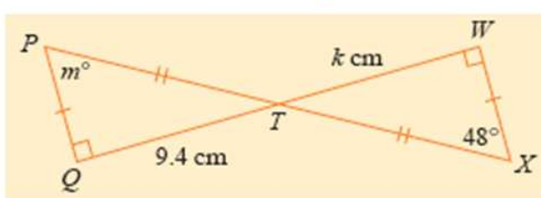
b)



Δ NPQ ≡ Δ MLQ

SAS

9 a)



Find m & k.

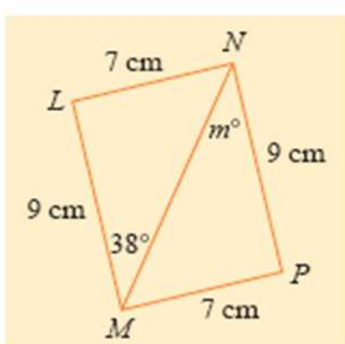
Name the pair.

m = 48°

k = 9.4 cm

Δ PQT ≡ Δ XWT

b)



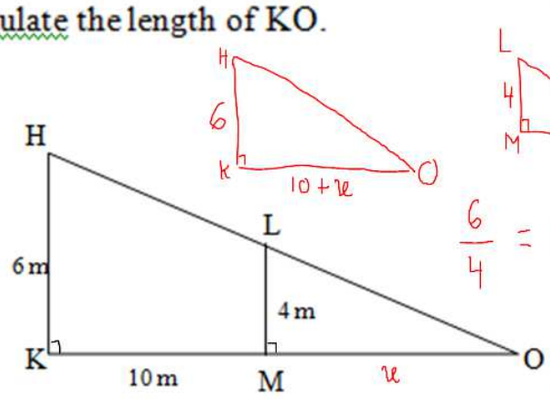
Find m.

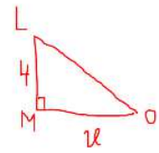
Name the pair.

m = 38°

Δ MNP ≡ Δ NML

(10). In the figure below, HK and LM are two vertical poles standing on horizontal ground KMO. Given that LM = 4 m, HK = 6 m and that KM = 10 m, calculate the length of KO.





$$\frac{6}{4} = \frac{10+x}{x}$$

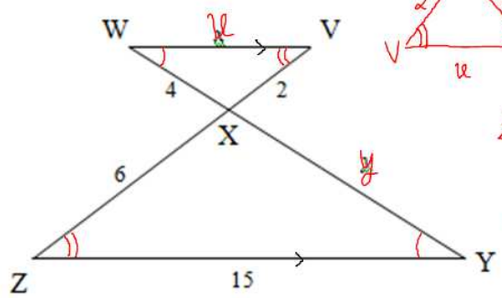
$6x = 40 + 4x$

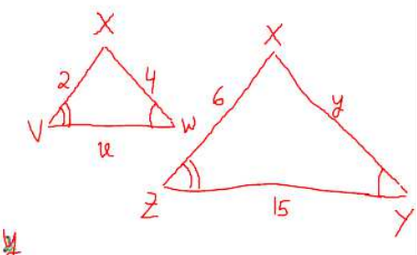
$2x = 40$

$x = 20$

$KO = 10 + x = 30\text{ m}$

(11) Find x & y.





$* \quad \frac{2}{6} = \frac{x}{15}$

$6x = 30$

$x = 5$

$* \quad \frac{2}{6} = \frac{4}{y}$

$2y = 24$

$y = 12$

(12) A triangle with the dimensions of 12 cm, 15 cm and 18 cm, respectively. Is it a right-angled Δ ?

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

$\downarrow$

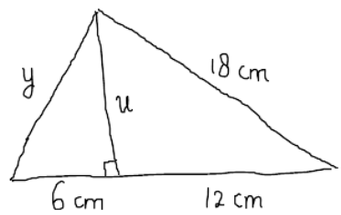
the longest side

Is $12^2 + 15^2 = 18^2$?

$144 + 225 = 324$

$369 \neq 324 \Rightarrow$ No

(13)



Find x, y & the area of the largest Δ.

* $x^2 + 12^2 = 18^2$

$x^2 + 144 = 324$

$x^2 = 324 - 144$

$x = \sqrt{180} = 13.42\text{cm}$

* $y^2 = x^2 + 6^2$

$= 13.41^2 + 36$

$= 180 + 36$

$y = \sqrt{216}$

$= 14.7\text{ cm}$

* Area $= \frac{1}{2} \times b \times h$

$= \frac{1}{2} \times 18 \times 13.42$

$= 120.78\text{ cm}^2$

(14) A Rhombus of sides 8 cm each has a diagonal 13 cm long. Find the length of its other diagonal. Also find the area of the rhombus.

$x^2 + 6.5^2 = 8^2$

$x^2 + 42.25 = 64$

$x^2 = 64 - 42.25$

$x = \sqrt{21.75}$

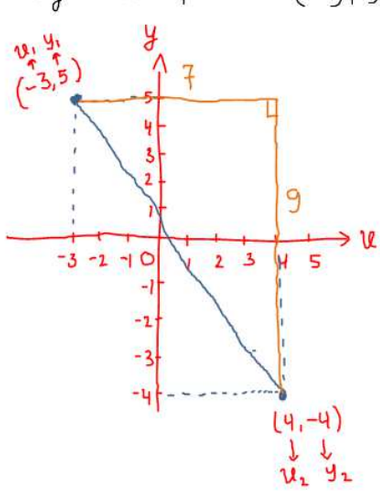
$= 4.66\text{ cm}$

$d_2 = 2x = 9.32\text{ cm}$

$A = \frac{d_1 \times d_2}{2}$

$= 60.58\text{cm}^2$

(15) Find the length of a line segment connected by two points $(-3, 5)$ and $(4, -4)$.



Length $l^2 = 7^2 + 9^2$

$= 49 + 81$

$l = \sqrt{130} = 11.40$

Formula

$l = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$