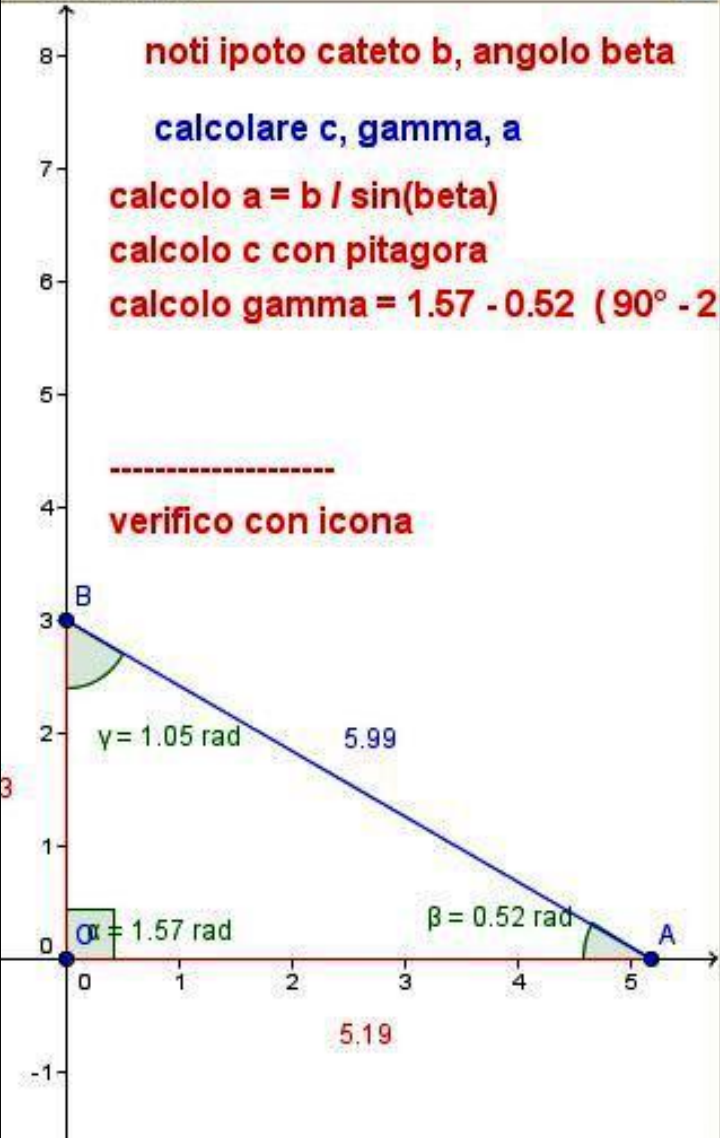


# Soluzione trigonometrica problemi con triangoli rettangoli

Con geogebra, derive

Vista Grafica



Vista Foglio di calcolo

|    | A      | B         | C      | D |
|----|--------|-----------|--------|---|
| 1  | 'beta  | 'b        |        |   |
| 2  | 0.52   | 3         |        |   |
| 3  | 29.81  | 'gradi    |        |   |
| 4  | 'a     | 6.04      |        |   |
| 5  | 'c     | 5.24      |        |   |
| 6  | 'gamma | 1.05      | 60.19  |   |
| 7  |        | 'radianti | 'gradi |   |
| 8  |        |           |        |   |
| 9  |        |           |        |   |
| 10 |        |           |        |   |
| 11 |        |           |        |   |
| 12 |        |           |        |   |
| 13 |        |           |        |   |
| 14 |        |           |        |   |
| 15 |        |           |        |   |
| 16 |        |           |        |   |
| 17 |        |           |        |   |
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| 19 |        |           |        |   |
| 20 |        |           |        |   |
| 21 |        |           |        |   |

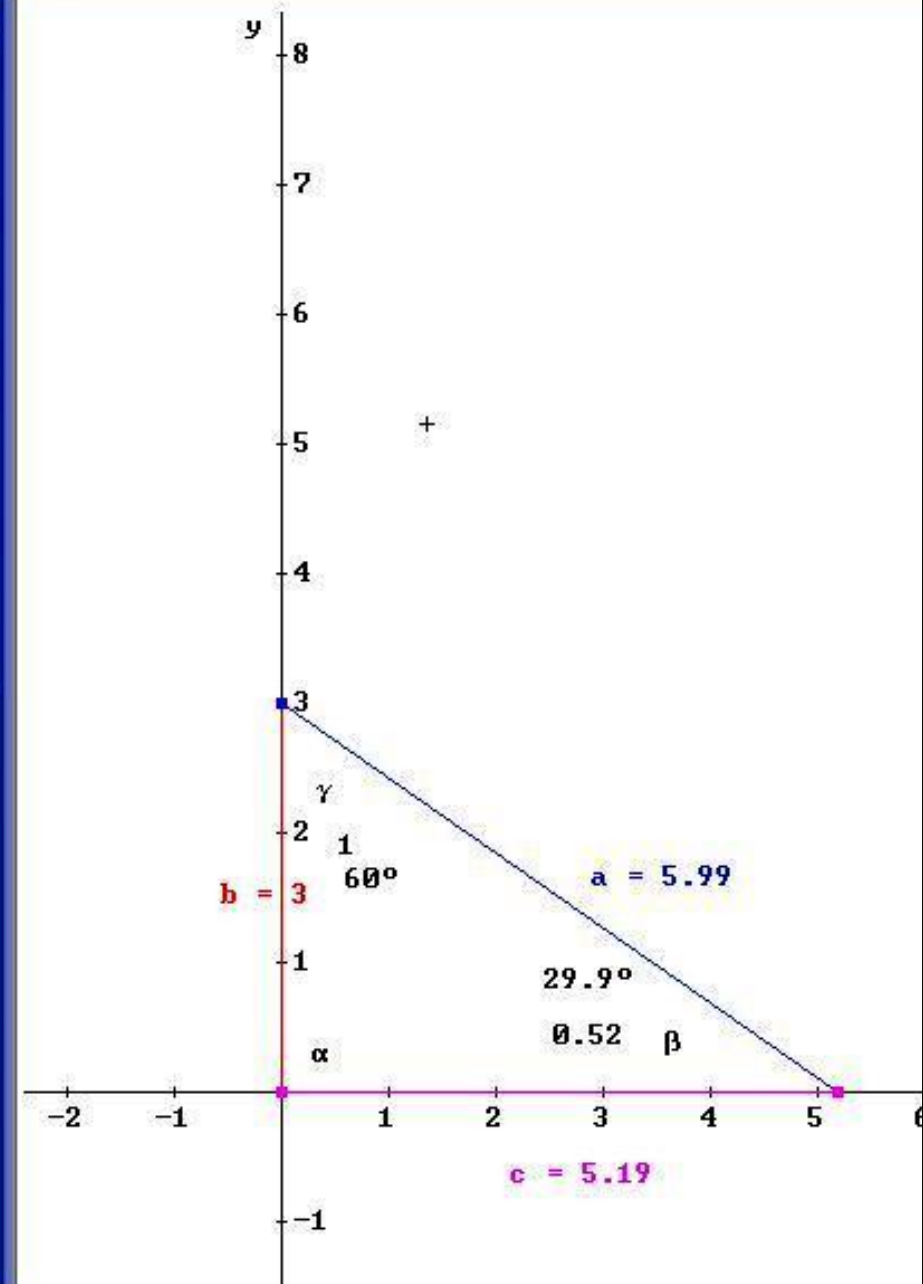
Protocollo di costruzione

| N. | Nome       | Definizione     |
|----|------------|-----------------|
| 15 | Testo t... |                 |
| 16 | Testo ...  |                 |
| 17 | Testo ...  |                 |
| 18 | Testo ...  |                 |
| 19 | Testo ...  |                 |
| 20 | Numer...   | 1.57 - A2       |
| 21 | Numer...   | B6 (180 / 3.14) |
| 22 | Testo ...  |                 |
| 23 | Testo ...  |                 |
| 24 | Testo t... |                 |
| 25 | Testo ...  |                 |
| 26 | Numer...   |                 |
| 27 | Testo ...  |                 |

```

#1: "triangolo rettangolo"
#2: "noti cateti b, c"
#3: "calcolare ipotenusa a , angoli beta, gamma"
#4: b := 3
#5: c := 5.19
#6: a :=  $\sqrt{b^2 + c^2}$ 
#7: 5.9
#8: "sin( $\beta$ ):=b/a"
#9:  $\frac{b}{a}$ 
#10: 0.52
#11:  $\text{ASIN}\left(\frac{b}{a}\right)$ 
#12: "radianti"
#13: 0.52
#14: "converto in gradi"
#15:  $\frac{0.52 \cdot 180}{\pi}$ 
#16: 29.7
#17: "calcolo gamma gradi"
#18:  $\gamma := 90 - 30$ 
#19: 60
#20: "converto gamma in radianti"

```





Algebra ??? .MTH

#20: "converto gamma in radianti"

#21: 
$$\frac{60 \cdot \pi}{180}$$

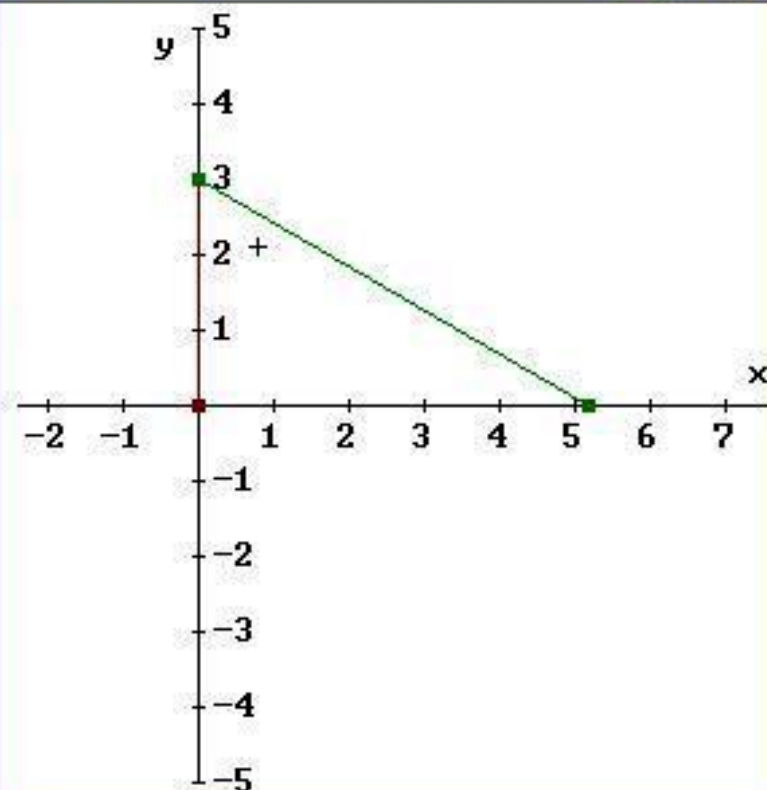
#22: 1.0

#23: 
$$\begin{bmatrix} 0 & 0 \\ 5.19 & 0 \end{bmatrix}$$

#24: 
$$\begin{bmatrix} 0 & 0 \\ 0 & 3 \end{bmatrix}$$

#25: 
$$\begin{bmatrix} 5.19 & 0 \\ 0 & 3 \end{bmatrix}$$

```
#1: "triangolo rettangolo"  
#2: "noti cateto b, ipotenusa a"  
#3: "calcolare cateto c , angoli beta, gamma"  
#4: a := 5.99  
#5: b := 3  
#6: "calcolo c con pitagora"  
#7: c :=  $\sqrt{a^2 - b^2}$   
#8: 5.1  
#9: "calcolo sin( $\beta$ )"  
#10: "sin( $\beta$ ):=b/a"  
#11:  $\frac{b}{a}$   
#12: 0.5  
#13:  $\text{ASIN}\left(\frac{b}{a}\right)$   
#14: "radianti"  
#15: 0.52  
#16: "converto in gradi"
```



#14: "radianti"

#15: 0.52

#16: "convertito in gradi"

$$\#17: \frac{0.52 \cdot 180}{\pi}$$

#18: 29.7

#19: "calcolo gamma = 90 - 30"

#20: 90 - 30

#21: 60

#22: "convertito in radianti"

$$\#23: \frac{60 \cdot 3.14}{180}$$

#24: 1.0

$$\#25: \begin{bmatrix} 0 & 0 \\ 5.19 & 0 \end{bmatrix}$$

$$\#26: \begin{bmatrix} 0 & 0 \\ 0 & 3 \end{bmatrix}$$

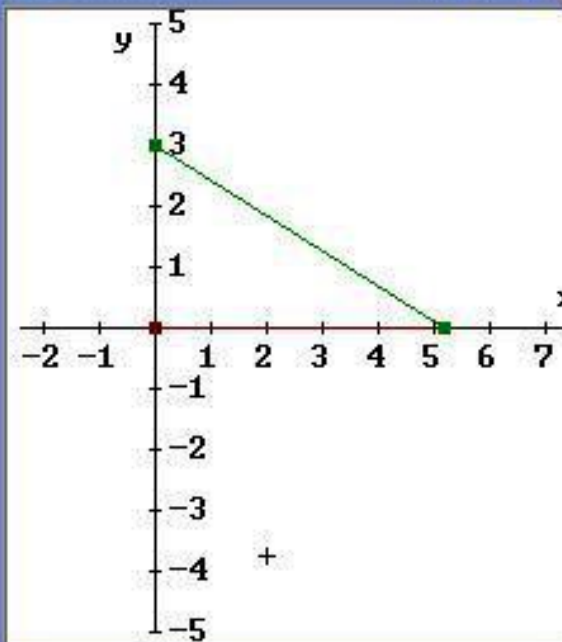
$$\#27: \begin{bmatrix} 5.19 & 0 \\ 0 & 3 \end{bmatrix}$$



```

#1: "triangolo rettangolo"
#2: "noti ipotenusa a, angolo β"
#3: "calcolare b, c , angolo gamma"
#4: a := 5.99
#5: β := 30
#6: "converto in radianti"
#7:  $\frac{30 \cdot \pi}{180}$ 
#8: 0.52
#9: "calcolo b = a*sin(β)"
#10: b := a · SIN(0.52)
#11: 2.9
#12: "calcolo c con pitagora"
#13: c :=  $\sqrt{a^2 - b^2}$ 
#14: 5.1
#15: "calcolo gamma = 90 - 30"
#16: 90 - 30
#17: 60
#18: "converto in radianti"
#19:  $\frac{60 \cdot 3.14}{180}$ 
#20: 1.0

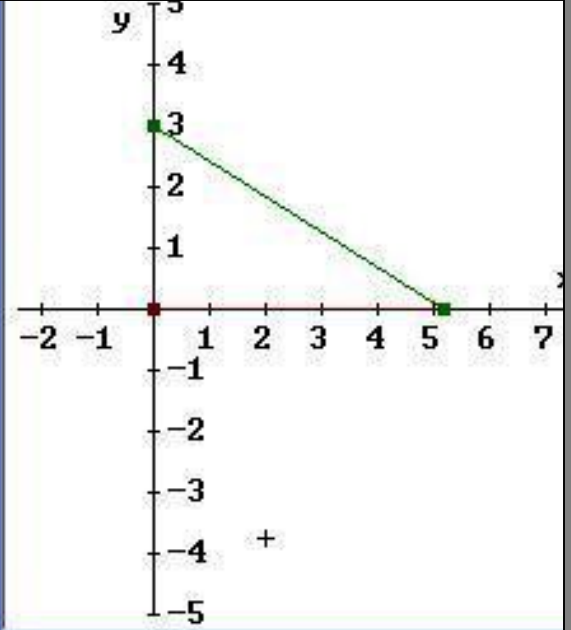
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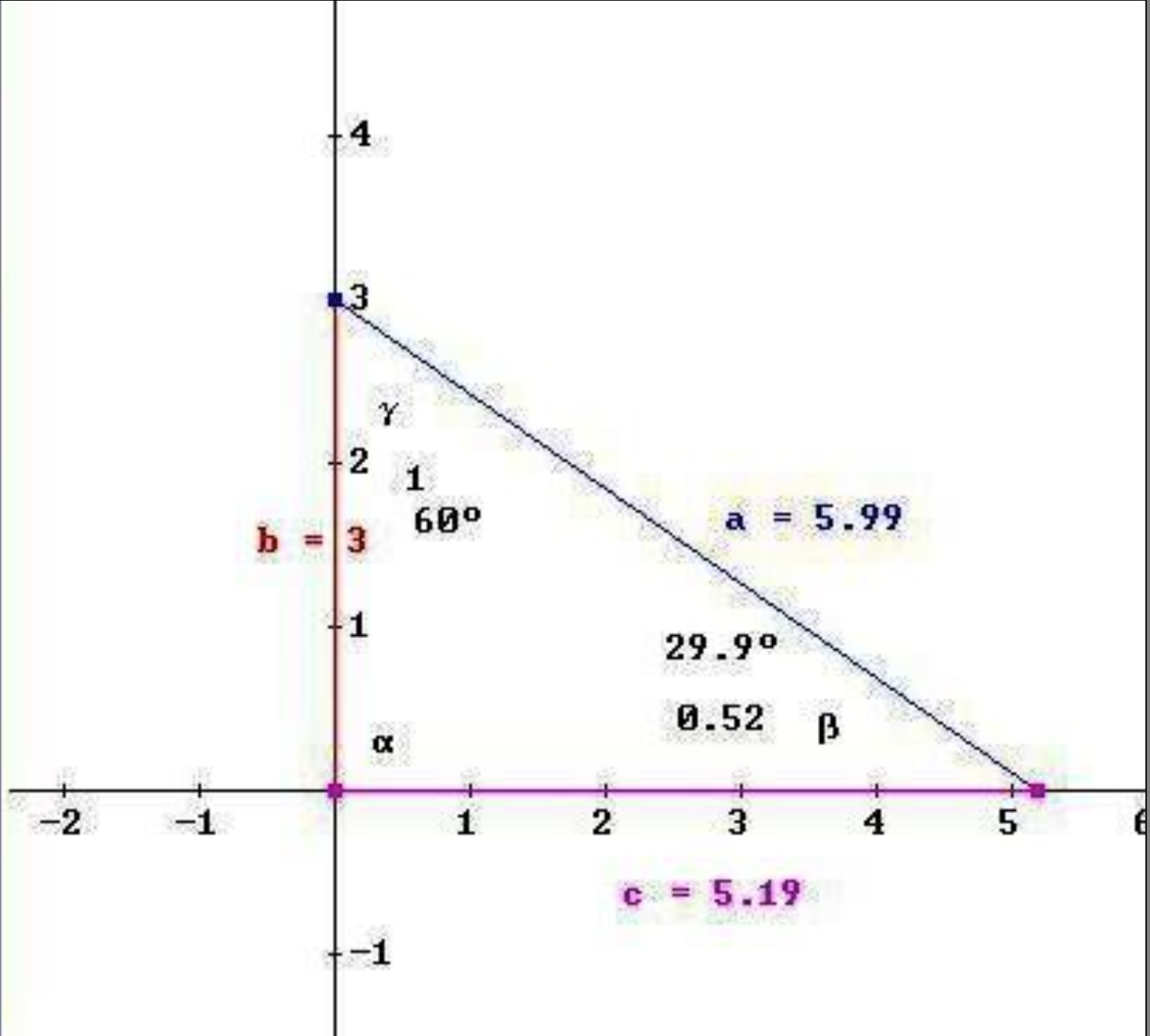
```

#1: "triangolo rettangolo"
#2: "noti cateti b, angolo β"
#3: "noti ipotenusa a, c, angolo γ"
#4: β := 30
#5: "convertito in radianti"
#6:  $\frac{30 \cdot \pi}{180}$ 
#7: 0.52
#8: b := 3
#9: "calcolo a = b / sin(β)"
#10: a :=  $\frac{b}{\text{SIN}(0.52)}$ 
#11: 6.0
#12: "calcolo c con pitagora"
#13: c :=  $\sqrt{a^2 - b^2}$ 
#14: 5.1
#15: "calcolo gamma = 90 - 30"
#16: 90 - 30
#17: 60
#18: "convertito in radianti"
#19:  $\frac{60 \cdot 3.14}{180}$ 
#20: 1.0

```





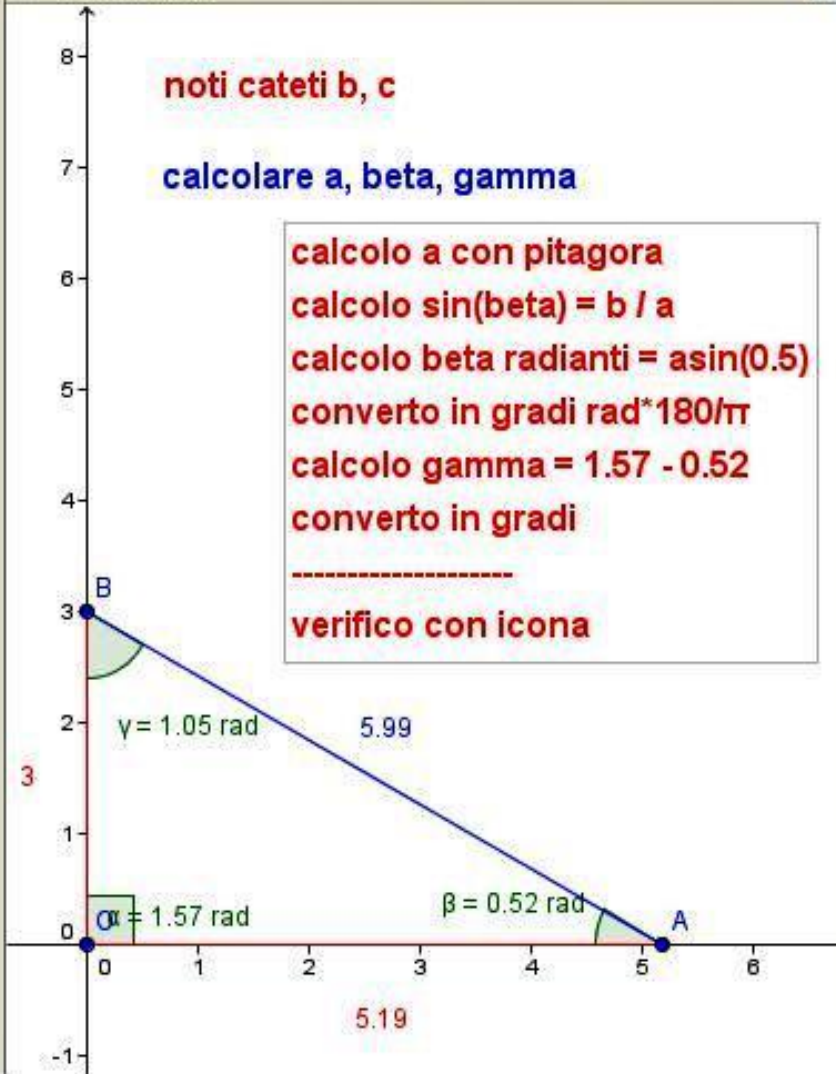




Vista Algebra

- Angolo
  - $\alpha = 1.57 \text{ rad}$
  - $\beta = 0.52 \text{ rad}$
  - $\gamma = 1.05 \text{ rad}$
- Numero
  - $d = 0$
- Punto
  - $A = (5.19, 0)$
  - $B = (0, 3)$
  - $O = (0, 0)$
- Segmento
  - $a = 5.19$
  - $b = 3$
  - $c = 5.99$

Vista Grafica



Vista Foglio di calcolo

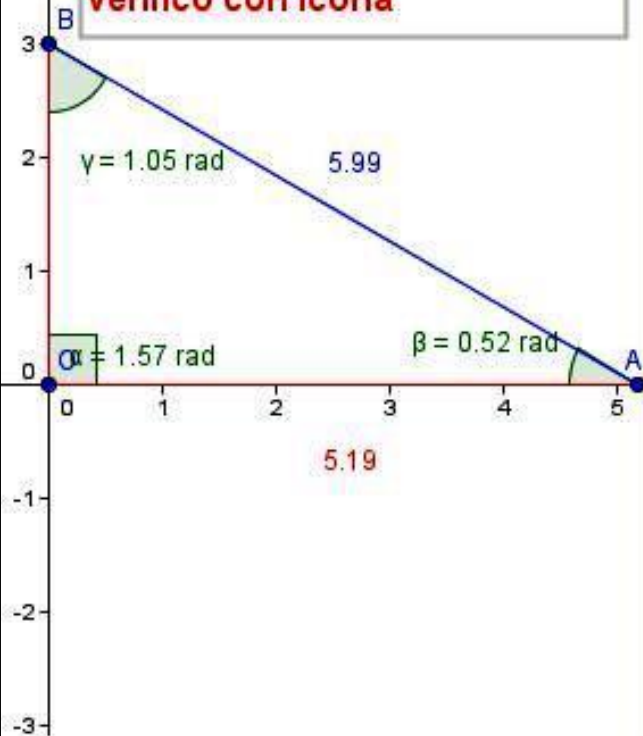
|    | A           | B         | C      |
|----|-------------|-----------|--------|
| 1  | 'b          | 'c        |        |
| 2  | 3           | 5.19      |        |
| 3  |             |           |        |
| 4  | 'a          | 5.99      |        |
| 5  | 'sin(beta)  | 0.5       |        |
| 6  | 'asin(beta) | 0.52      | 30.04  |
| 7  |             | 'radianti | 'gradi |
| 8  | 'gamma      | 1.05      | 59.96  |
| 9  |             | 'radianti | 'gradi |
| 10 |             |           |        |
| 11 |             |           |        |
| 12 |             |           |        |
| 13 |             |           |        |
| 14 |             |           |        |
| 15 |             |           |        |
| 16 |             |           |        |
| 17 |             |           |        |
| 18 |             |           |        |
| 19 |             |           |        |
| 20 |             |           |        |

calcolare a, beta, gamma

calcolo a con pitagora  
 calcolo  $\sin(\beta) = b / a$   
 calcolo beta radianti =  $\text{asin}(0.5)$   
 converto in gradi  $\text{rad} \cdot 180/\pi$   
 calcolo gamma =  $1.57 - 0.52$   
 converto in gradi

---

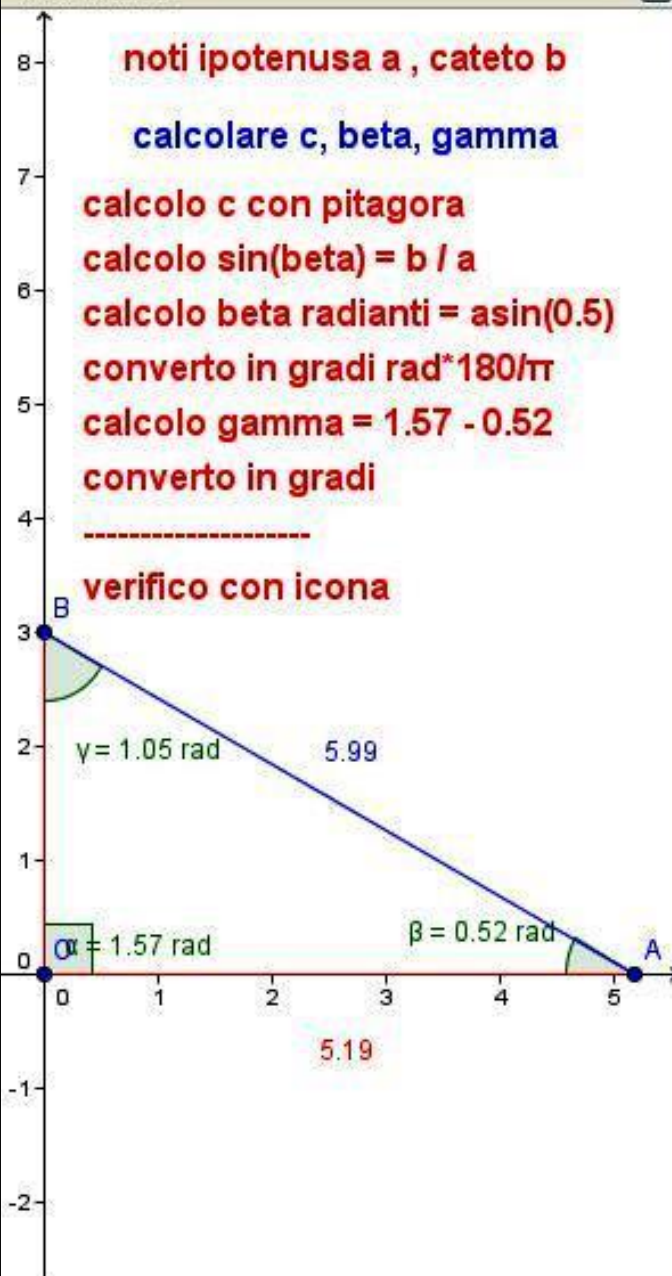
verifico con icona



|    | A           | B         | C      |
|----|-------------|-----------|--------|
| 1  | 'b          | 'c        |        |
| 2  | 3           | 5.19      |        |
| 3  |             |           |        |
| 4  | 'a          | 5.99      |        |
| 5  | 'sin(beta)  | 0.5       |        |
| 6  | 'asin(beta) | 0.52      | 30.04  |
| 7  |             | 'radianti | 'gradi |
| 8  | 'gamma      | 1.05      | 59.96  |
| 9  |             | 'radianti | 'gradi |
| 10 |             |           |        |
| 11 |             |           |        |
| 12 |             |           |        |
| 13 |             |           |        |
| 14 |             |           |        |
| 15 |             |           |        |
| 16 |             |           |        |
| 17 |             |           |        |
| 18 |             |           |        |
| 19 |             |           |        |
| 20 |             |           |        |
| 21 |             |           |        |
| 22 |             |           |        |
| 23 |             |           |        |
| 24 |             |           |        |

| N. | Nome        | Definizione                |
|----|-------------|----------------------------|
| 17 | Testo A4    |                            |
| 18 | Numero ...  | $\text{sqrt}(A2^2 + B2^2)$ |
| 19 | Testo A5    |                            |
| 20 | Numero ...  | $A2 / B4$                  |
| 21 | Testo A6    |                            |
| 22 | Numero ...  | $\text{asin}(B5)$          |
| 23 | Numero ...  | $B6 (180 / 3.14)$          |
| 24 | Testo B7    |                            |
| 25 | Testo C7    |                            |
| 26 | Testo A8    |                            |
| 27 | Numero ...  | $1.57 - B6$                |
| 28 | Numero ...  | $B8 (180 / 3.14)$          |
| 29 | Testo B9    |                            |
| 30 | Testo C9    |                            |
| 31 | Testo te... |                            |

Vista Grafica



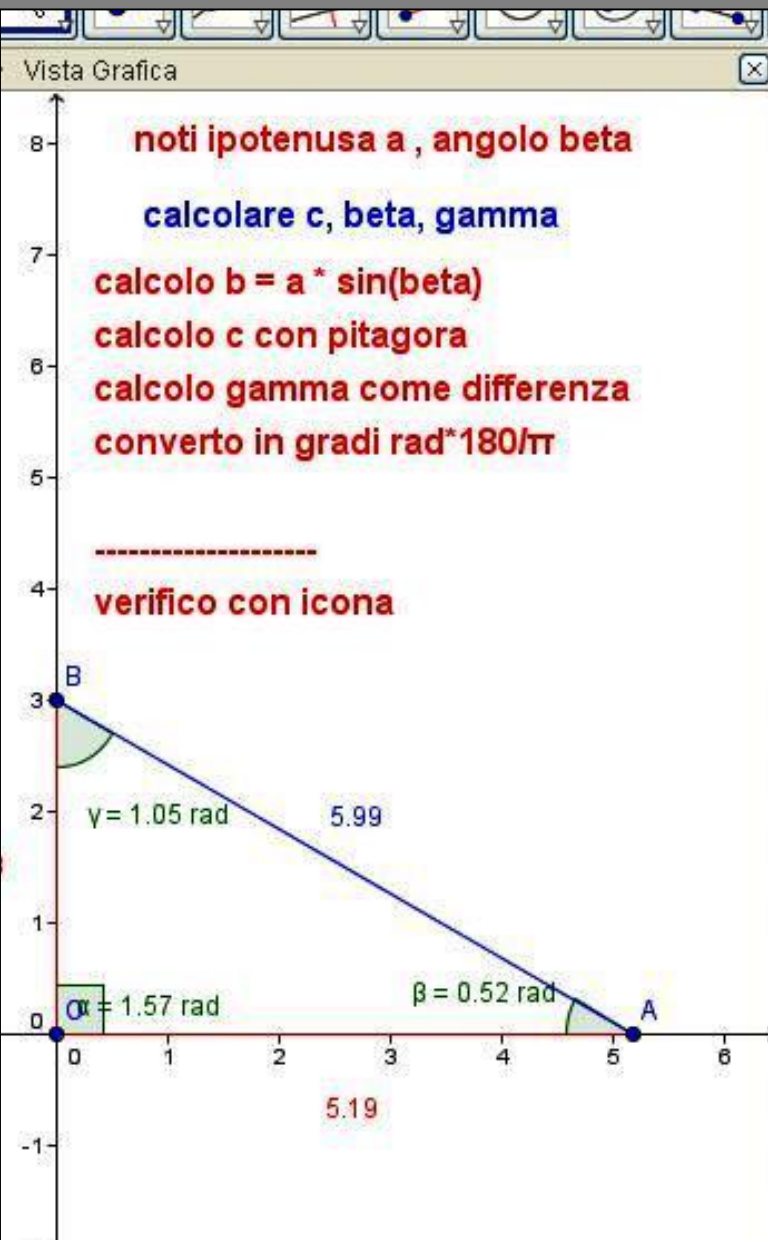
Vista Foglio di calcolo

|    | A           | B         | C      |
|----|-------------|-----------|--------|
| 1  | 'b          | 'a        |        |
| 2  | 3           | 5.99      |        |
| 3  |             |           |        |
| 4  | 'c          | 5.18      |        |
| 5  | 'sin(beta)  | 0.5       |        |
| 6  | 'asin(beta) | 0.52      | 30.07  |
| 7  |             | 'radianti | 'gradi |
| 8  | 'gamma      | 1.05      | 59.93  |
| 9  |             | 'radianti | 'gradi |
| 10 |             |           |        |
| 11 |             |           |        |
| 12 |             |           |        |
| 13 |             |           |        |
| 14 |             |           |        |
| 15 |             |           |        |
| 16 |             |           |        |
| 17 |             |           |        |
| 18 |             |           |        |
| 19 |             |           |        |
| 20 |             |           |        |
| 21 |             |           |        |
| 22 |             |           |        |
| 23 |             |           |        |

Protocollo di costruzione

| N. | Nome      | Definizione                |
|----|-----------|----------------------------|
| 17 | Testo ... |                            |
| 18 | Numer...  | $\text{sqrt}(B2^2 - A2^2)$ |
| 19 | Testo ... |                            |
| 20 | Numer...  | $A2 / B2$                  |
| 21 | Testo ... |                            |
| 22 | Numer...  | $\text{asin}(B5)$          |
| 23 | Numer...  | $B6 (180 / 3.14)$          |
| 24 | Testo ... |                            |
| 25 | Testo ... |                            |
| 26 | Testo ... |                            |
| 27 | Numer...  | $1.57 - B6$                |
| 28 | Numer...  | $B8 (180 / 3.14)$          |
| 29 | Testo ... |                            |
| 30 | Testo ... |                            |
| 31 | Testo ... |                            |





Vista Foglio di calcolo

|    | A      | B         | C      |
|----|--------|-----------|--------|
| 1  | 'beta  | 'a        |        |
| 2  | 0.52   | 5.99      |        |
| 3  | 29.81  | 'gradi    |        |
| 4  | 'b     | 2.98      |        |
| 5  | 'c     | 5.2       |        |
| 6  | 'gamma | 1.05      | 60.19  |
| 7  |        | 'radianti | 'gradi |
| 8  |        |           |        |
| 9  |        |           |        |
| 10 |        |           |        |
| 11 |        |           |        |
| 12 |        |           |        |
| 13 |        |           |        |
| 14 |        |           |        |
| 15 |        |           |        |
| 16 |        |           |        |
| 17 |        |           |        |
| 18 |        |           |        |
| 19 |        |           |        |
| 20 |        |           |        |
| 21 |        |           |        |

Protocollo di costruzione

| N. | Nome       | Definizione                |
|----|------------|----------------------------|
| 15 | Testo t... |                            |
| 16 | Testo ...  |                            |
| 17 | Testo ...  |                            |
| 18 | Testo ...  |                            |
| 19 | Testo ...  |                            |
| 20 | Numer...   | $\text{sqrt}(B2^2 - B4^2)$ |
| 21 | Numer...   | $1.57 - A2$                |
| 22 | Numer...   | $B6 (180 / 3.14)$          |
| 23 | Testo ...  |                            |
| 24 | Testo ...  |                            |
| 25 | Testo t... |                            |
| 26 | Testo ...  |                            |
| 27 | Numer...   |                            |
| 28 | Testo ...  |                            |