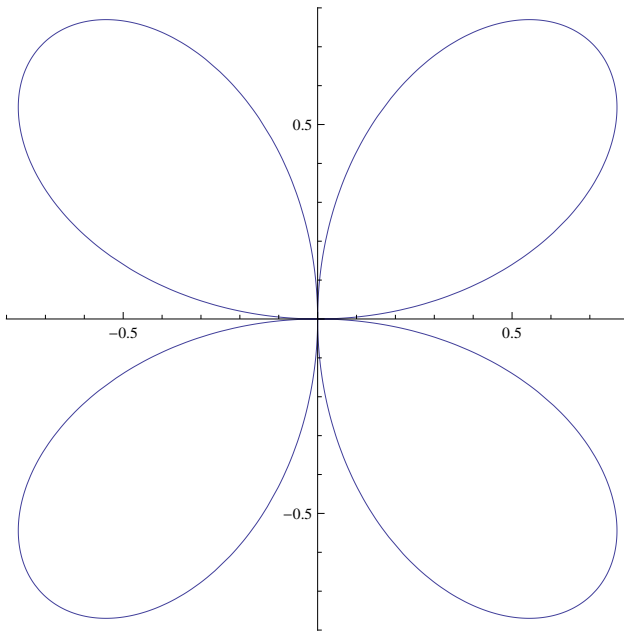
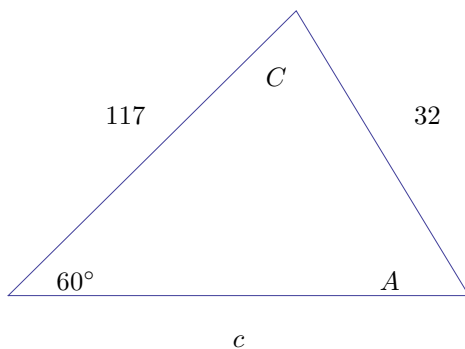


1. Identify the equation corresponding to the graph:



- A.  $r = \cos(\theta)$
- B.  $r = \cos(2\theta)$
- C.  $r = \sin(\theta)$
- D.  $r = \sin(2\theta)$
- E. none of these

2. Consider



Select the best description of side  $c$ :

- A.  $c = 76.1676$  OR  $c = 109.692$
- B.  $c = 39.2634$
- C.  $c = 60.3715$
- D. no real solution
- E. None of These

---

3. Select the expression equivalent to:

$$\frac{\cos 475^\circ + i \sin 475^\circ}{\cos 485^\circ + i \sin 485^\circ}$$

A.

$$\cos 1302^\circ + i \sin 1302^\circ$$

B.

$$\cos 1781^\circ + i \sin 1781^\circ$$

C.

$$\cos 960^\circ + i \sin 960^\circ$$

D.

$$\cos 1554^\circ + i \sin 1554^\circ$$

E. none of these

---

4. Select: true or false...

$$\frac{\cos 165^\circ + i \sin 165^\circ}{\cos 445^\circ + i \sin 445^\circ} = \frac{e^{i \cdot 165^\circ}}{e^{i \cdot 445^\circ}}$$

A. True

B. False

---

5. Find all real solutions to:

$$\cos(\beta) = \frac{1}{2}$$

A.

$$k \in \mathbb{Z} \quad \text{and} \quad \left( \beta = 2\pi k - \frac{\pi}{3} \quad \text{OR} \quad \beta = 2\pi k + \frac{\pi}{3} \right)$$

B.

$$k \in \mathbb{Z} \quad \text{and} \quad \left( \beta = 2\pi k - \frac{\pi}{6} \quad \text{OR} \quad \beta = 2\pi k + \frac{7\pi}{6} \right)$$

C.

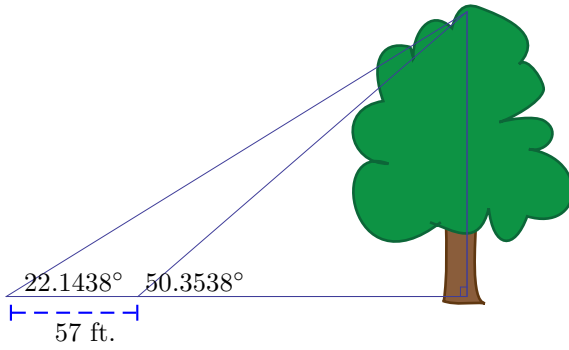
$$k \in \mathbb{Z} \quad \text{and} \quad \left( \beta = 2\pi k \quad \text{OR} \quad \beta = 2\pi k + \frac{2\pi}{3} \right)$$

D. none of these

---

6.

Consider



Select the approximate height of the tree:

- A. 25.9361 ft
- B. 34.9975 ft
- C. 17.6523 ft
- D. 26.5556 ft
- E. None of These

---

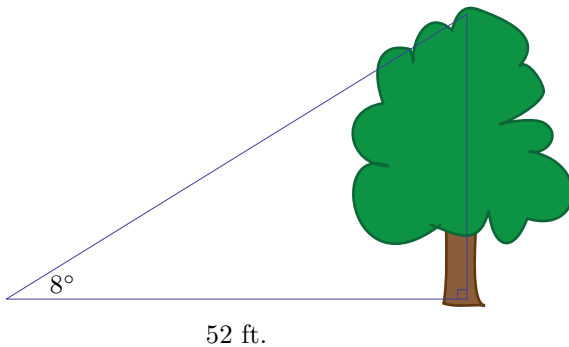
7. Select: true or false...

$$(\cos 195^\circ + i \sin 195^\circ)^9 = (e^{i \cdot 195^\circ})^9 = \cos 204^\circ + i \sin 204^\circ$$

- A. True
- B. False

---

8. Consider



Select the approximate height of the tree:

- A. 8.308 ft
- B. 7.308 ft
- C. 13.308 ft
- D. 6.308 ft
- E. None of These

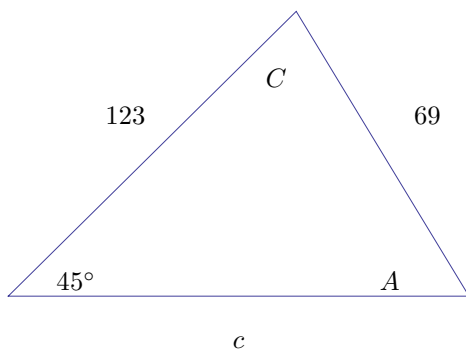
---

9. Select: true or false...

$$\frac{\cos 85^\circ + i \sin 85^\circ}{\cos 185^\circ + i \sin 185^\circ} = \frac{e^{i \cdot 85^\circ}}{e^{i \cdot 185^\circ}}$$

- A. True
  - B. False
- 

10. Consider



Select the best description of side  $c$ :

- A.  $c = 82.4826$
  - B.  $c = 82.1795$  OR  $c = 58.7004$
  - C.  $c = 58.7195$
  - D.  $c = 49.3738$
  - E. None of These
- 

11. Select: true or false...

$$(\cos 485^\circ + i \sin 485^\circ)^8 = (e^{i \cdot 485^\circ})^8 = \cos 493^\circ + i \sin 493^\circ$$

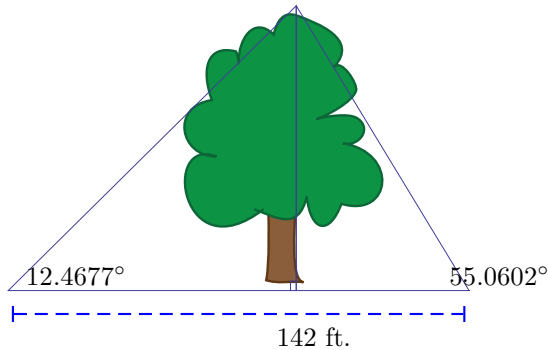
- A. True
  - B. False
- 

12. Determine if the following is an identity or not

$$\cos(2x) = 2 \sin\left(\frac{\pi}{4} - x\right) \sin\left(x + \frac{\pi}{4}\right)$$

- A. Identity
- B. NOT an Identity

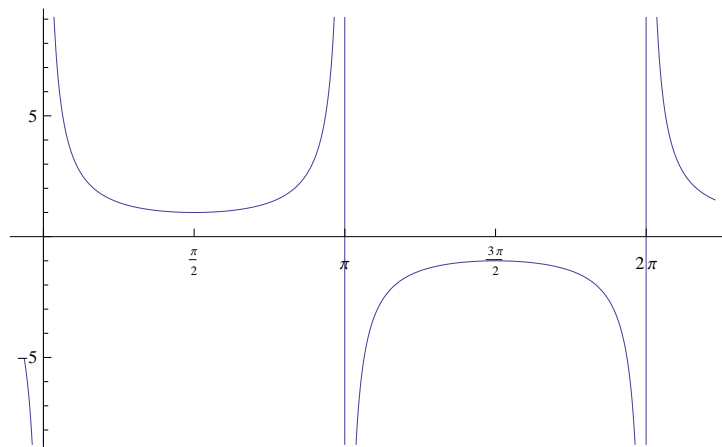
13. Consider



Select the approximate height of the tree:

- A. 15.9678 ft
- B. 27.1956 ft
- C. 47.0465 ft
- D. 20.9889 ft
- E. None of These

14. Identify the equation corresponding to the graph:



- A.  $y = \sin(x)$
- B.  $y = \sec(x)$
- C.  $y = \tan(x)$
- D.  $y = \csc(x)$
- E. none of these

---

15. Determine if the following is an identity or not

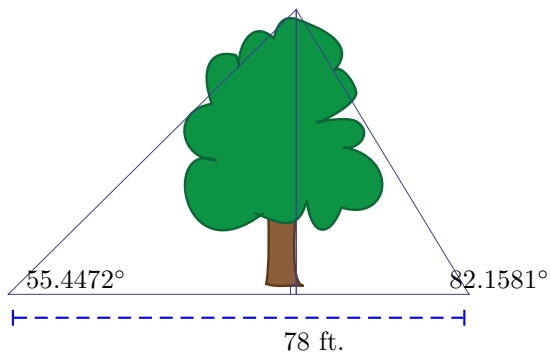
$$-\csc(2y) = -\frac{1}{2} \csc(y) \sec(y)$$

A. Identity

B. NOT an Identity

---

16. Consider



Select the approximate height of the tree:

A. 143.909 ft

B. 94.3891 ft

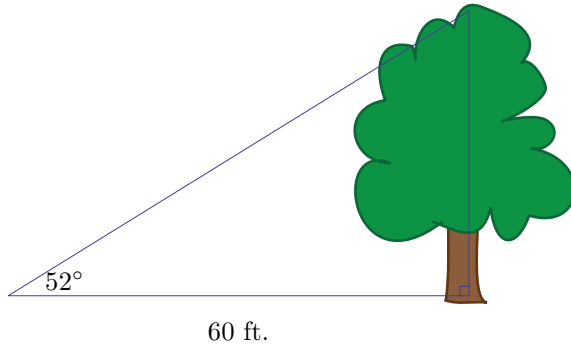
C. 142.868 ft

D. 53.5451 ft

E. None of These

---

17. Consider



Select the approximate height of the tree:

- A. 71.80 ft
- B. 76.80 ft
- C. 75.80 ft
- D. 78.80 ft
- E. None of These

---

18. Determine if the following is an identity or not

$$\tan(2\beta) = \sin(\beta) \cos(\beta) \csc\left(\frac{\pi}{4} - \beta\right) \csc\left(\beta + \frac{\pi}{4}\right)$$

- A. Identity
- B. NOT an Identity

---

19. Determine if the following is an identity or not

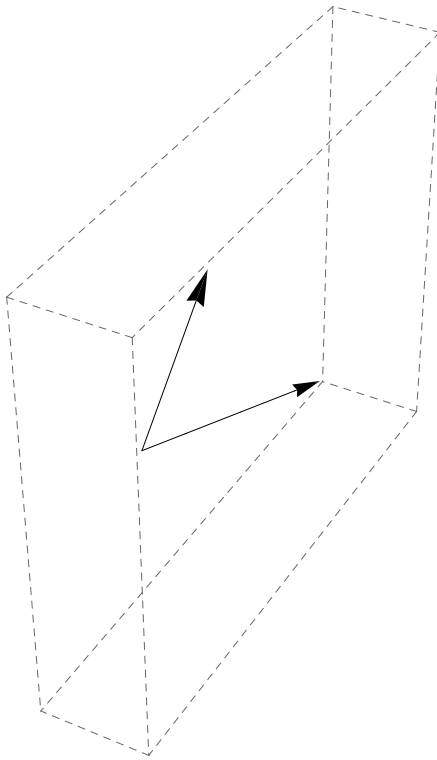
$$\sec(2v) = \frac{1}{\cos^2(v) - \sin^2(v)}$$

- A. Identity
- B. NOT an Identity

---

20.

Find the angle,  $\theta$ , between the two vectors:  
 $\langle -1, 5, -3 \rangle$  and  $\langle 0, 1, 1 \rangle$



- A.  $\theta = 117.105^\circ$
- B.  $\theta = 133.984^\circ$
- C.  $\theta = 53.9429^\circ$
- D.  $\theta = 76.1698^\circ$
- E. none of these

---

q1='C'; q2 ='D'; q3 ='E'; q4 ='A'; q5 ='A'; q6 ='B'; q7 ='B'; q8 ='B'; q9 ='A'; q10 ='E'; q11 ='B'; q12 ='B'; q13  
='B'; q14 ='D'; q15 ='A'; q16 ='B'; q17 ='B'; q18 ='A'; q19 ='A'; q20 ='D';