

Trigonometry Chapter 1

Section 1

I. Vocabulary

Complete the definition of each item:

1. One DEGREE corresponds to _____ of one complete revolution
2. An angle is ACUTE if its degree measure is _____
3. An angle is A RIGHT ANGLE if its degree measure is _____
4. An angle is OBTUSE if its degree measure is _____
5. An angle is A STRAIGHT ANGLE if its degree measure is _____
6. An angle is A REFLEX ANGLE if its degree measure is _____
7. An angle's measure is POSITIVE if the direction of its rotation is _____
8. An angle's measure is NEGATIVE if the direction of its rotation is _____
9. Two angles are COMPLEMENTARY if _____
10. Two angles are SUPPLEMENTARY if _____

II. Find the measure of (a) the complement and (b) the supplement of each given angle.

Example: $\theta = 54^\circ$

Solution: (a) $\theta_c = 90^\circ - 54^\circ = \boxed{36^\circ}$ (b) $\theta_s = 180^\circ - 54^\circ = \boxed{126^\circ}$

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|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 11. $\theta = 35^\circ$ | 12. $\theta = 72^\circ$ | 13. $\theta = 45^\circ$ | 14. $\theta = 6^\circ$ | 15. $\theta = 0^\circ$ |
| 16. $\theta = 80^\circ$ | 17. $\theta = 17^\circ$ | 18. $\theta = 63^\circ$ | 19. $\theta = 33^\circ$ | 20. $\theta = 49^\circ$ |

II. Find the measure of the supplement of each given angle.

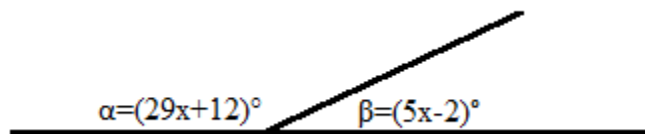
Example: $\theta = 122^\circ$

Solution: $\theta_s = 180^\circ - 122^\circ = \boxed{158^\circ}$

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|--------------------------|--------------------------|-------------------------|--------------------------|------------------------|
| 21. $\theta = 112^\circ$ | 22. $\theta = 167^\circ$ | 23. $\theta = 90^\circ$ | 24. $\theta = 135^\circ$ | 25. $\theta = 0^\circ$ |
|--------------------------|--------------------------|-------------------------|--------------------------|------------------------|

III. Find the measure of each indicated angle, α and β .

Example:



Solution: Since the angles are supplementary we have

$$\alpha + \beta = 180$$

$$\Rightarrow 29x + 12 + 5x - 2 = 180$$

$$\Rightarrow 34x + 10 = 180$$

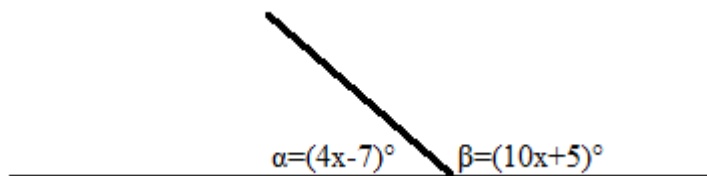
$$\Rightarrow 34x = 170$$

$$\Rightarrow x = 5$$

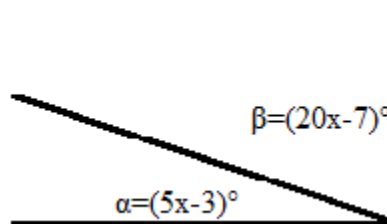
$$\Rightarrow \alpha = 29(5) + 12 = \boxed{157}$$

$$\Rightarrow \beta = 5(5) - 2 = \boxed{23}$$

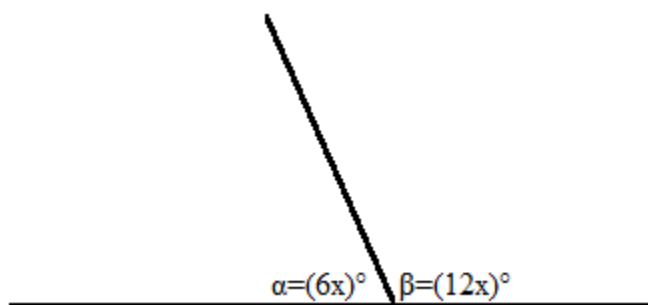
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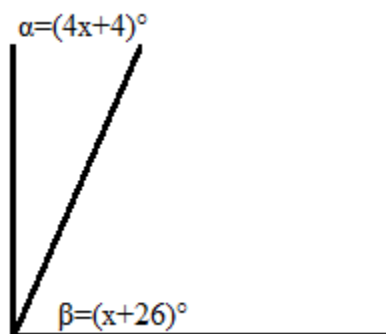
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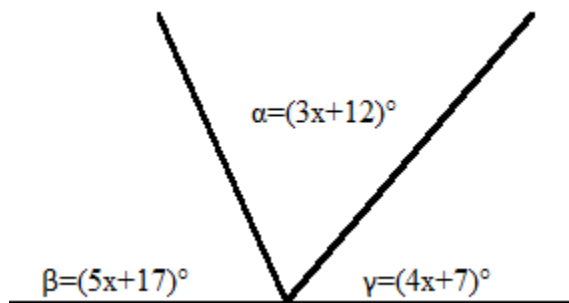
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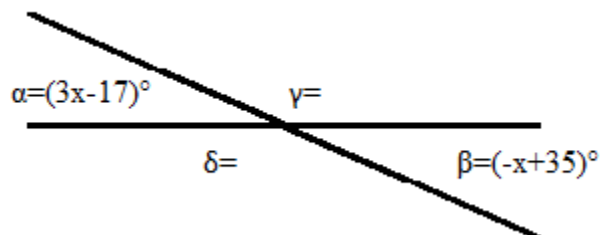
29.



30.



31.



III. Find the angle of least positive measure (not equal to the given value) which is coterminal with each angle.

Example: (a) $\theta = 42^\circ$ (b) $\theta = 435^\circ$ (c) $\theta = -470^\circ$ (d) $\theta = 333^\circ$ (e) $\theta = 1140^\circ$

Solution: (a) Add on one rotation: $\theta_1 = 42^\circ + 360^\circ = \boxed{402^\circ}$

(b) Subtract off one rotation: $\theta_1 = 435^\circ - 360^\circ = \boxed{75^\circ}$

(c) Add on one rotation: $\theta_1 = -470^\circ + 360^\circ = -110^\circ$

Add on another rotation: $\theta_1 = -110^\circ + 360^\circ = \boxed{250^\circ}$

OR

Add on TWO rotations: $\theta_1 = -470^\circ + 720^\circ = \boxed{250^\circ}$

(d) Add on one rotation: $\theta_1 = 333^\circ + 360^\circ = \boxed{693^\circ}$

(e) Subtract off three rotations: $\theta_1 = 1140^\circ - 1080^\circ = \boxed{60^\circ}$

32. $\theta = 67^\circ$

33. $\theta = 180^\circ$

34. $\theta = -216^\circ$

35. $\theta = -52^\circ$

36. $\theta = 1255^\circ$

37. $\theta = 0^\circ$

38. $\theta = 33^\circ$

39. $\theta = -296^\circ$

V. Find two positive and two negative angles that are coterminal with the given angle.

Example: (a) $\theta = 30^\circ$ (b) $\theta = 90^\circ$

Solution: (a) Add one then two rotations: $\theta_1 = 30^\circ + 360^\circ = \boxed{390^\circ}$

$$\theta_2 = 390^\circ + 360^\circ = \boxed{750^\circ}$$

Subtract one then two rotations: $\theta_3 = 30^\circ - 360^\circ = \boxed{-330^\circ}$

$$\theta_4 = -330^\circ - 360^\circ = \boxed{-690^\circ}$$

40. $\theta = 105^\circ$

41. $\theta = -180^\circ$

42. $\theta = 225^\circ$

43. $\theta = 10^\circ$

Write an expression that generates all the angles coterminal with the given angle.

44. $\theta = 67^\circ$

45. $\theta = 180^\circ$

46. $\theta = -216^\circ$

47. $\theta = -52^\circ$

ANSWERS:

* * * answers will be listed here* * *