

ACT Formulas

You must MEMORIZE these!!!

Name _____

1. Complementary Angles (Definition):

Two angles with sum of 90°

2. Supplementary Angles (Definition):

Two angles with sum of 180°

3. Distance Formula:

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

4. Midpoint Formula:

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

5. Slope Formula:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

6. Slope-Intercept Form:

$$y = mx + b$$

\nwarrow slope \nwarrow y-intercept

7. Point-Slope Form:

$$y - y_1 = m(x - x_1)$$

8. Slope of Parallel Lines:

Same slope.

Ex. $\frac{2}{3} \rightarrow \frac{2}{3}$

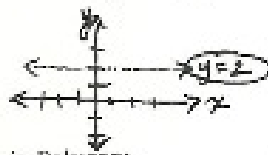
9. Slope of Perpendicular Lines:

Opposite reciprocal Ex. $\frac{2}{3} \rightarrow -\frac{3}{2}$

10. Horizontal Lines:

Slope = 0

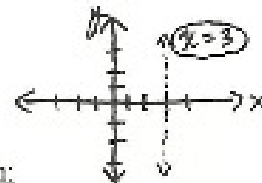
$$y = ?$$



11. Vertical Lines:

Slope = undefined

$$x = ?$$



12. Sum of Interior Angles in Polygon:

of sides $(n-2) \cdot 180^\circ$

13. Sum of Exterior Angles in Polygon:

$$360^\circ$$

14. Pythagorean Theorem (Write formula and then draw and label the figure):

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



15. Triples:

- 3, 4, 5
- 5, 12, 13

16. Circumference of a Circle:

$$C = \pi \cdot d$$

17. Area of a Circle:

$$A = \pi r^2$$

18. Area of Rectangle:

$$A = l \cdot w$$

19. Area of a Triangle:

$$A = \frac{1}{2} b \cdot h$$

20. Area of Parallelogram:

$$A = b \cdot h$$

21. Area of a Trapezoid:

$$A = \frac{1}{2} \cdot h \cdot (b_1 + b_2)$$

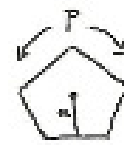
22. Area of Rhombus or Kite:

$$A = \frac{1}{2} \cdot d_1 \cdot d_2$$

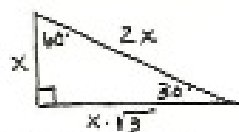
23. Area of Regular Polygon:

$$A = \frac{1}{2} \cdot a \cdot P$$

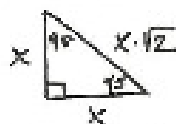
\nwarrow apothem \nwarrow Perimeter



24. Special Triangles (Label 30-60-90):



25. Special Triangles (Label 45-45-90):



26. Area of a Sector:

$$\frac{\text{Degree}}{360} = \frac{x \cdot \text{Area of sector}}{\pi r^2}$$

27. Length of an Arc:

$$\frac{\text{Degree}}{360} = \frac{x \cdot \text{Length of Arc}}{\pi \cdot d}$$

28. Trigonometry: Sine, Cosine, and Tangent:

SOH CAH TOA

sine = $\frac{\text{opposite}}{\text{hypotenuse}}$

cosine = $\frac{\text{adjacent}}{\text{hypotenuse}}$

tangent = $\frac{\text{opp.}}{\text{adj.}}$

$$(x-h)^2 + (y-k)^2 = r^2$$

(h, k) ← center radius

30. Percent Proportion:

$$\frac{\text{is}}{\text{of}} = \frac{\%}{100}$$

31. Percent of Increase/Decrease:

$$\frac{\text{Increase or Decrease}}{\text{Original}} = \frac{\%}{100}$$

32. Quadratic Formula/Factoring:

$$\text{For: } ax^2 + bx + c = 0$$

If it won't factor...

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$