Geometry and trigonometry Worksheet

ACT Math

Name _____ Date _____

Warm-up

1. A circle has diameter 16. Find its area. Use pi.

2. Find the volume of a box 5 by 2 by 6.

3. $\sin A$ is...
   (A) $\frac{\text{opposite}}{\text{hypotenuse}}$ (B) $\frac{\text{opposite}}{\text{adjacent}}$ (C) $\frac{\text{hypotenuse}}{\text{opposite}}$ (D) $\frac{\text{adjacent}}{\text{hypotenuse}}$

4. Find the third angle: $21°$ and $22°$, in degrees.

5. Find the radius of $(x-1)^2 + (y+2)^2 = 81$.

Practice

6. A 30-60-90 triangle has a short side of 8. Find the hypotenuse.

7. Find the center of $(x-8)^2 + (y+3)^2 = 4$.
   $x =$ _____ $y =$ _____

8. A 24 m ramp makes $30°$ with the ground. How high is it, in meters?

9. Find the angle sum of a polygon with 10 sides, in degrees.

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10. A $90°$ sector with radius 10. Find its area. Use pi.

11. Find the amplitude of $y = 2\sin(5x)$.

12. A square has a diagonal of $8\sqrt{2}$. Find its area.

13. A cylinder has radius 5 and height 3. Find its volume. Use pi.

Challenge

14. A circle's area doubles. By what factor does the radius change? Leave a root.

15. A box 2 by 3 by 6: find the longest diagonal.

16. $\cos A = \dfrac{5}{13}$ in a right triangle. Find $\tan A$.

17. A regular hexagon: find one interior angle, in degrees.

18. A sector has area 9π and radius 6. Find its angle, in degrees.

Geometry and trigonometry Worksheet: Answer Key

ACT Math

1. 64π

   Radius 8.

2. 60

   Multiply.

3. (A) $\dfrac{\text{opposite}}{\text{hypotenuse}}$

   SOH.

4. 137

   $180 - 21 - 22$.

5. 9

   The root.

6. 16

   Twice the short side.

7. $x = 8$, $y = -3$

   The signs flip.

8. 12

   $\sin 30° = \dfrac{1}{2}$.

9. 1440

   $(n-2)180$.

10. 25π

    $\dfrac{1}{4}\pi r^2$.

11. 2

    The number in front.

12. 64

    Side 8.

13. 75π

    $\pi r^2 h$.

14. $\sqrt{2}$

    r^2 doubles.

15. 7

    $\sqrt{2^2 + 3^2 + 6^2}$.

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16. $\dfrac{12}{5}$

    5-12-13 triangle.

17. 120

    $720 \div 6$.

18. 90

    $\dfrac{\theta}{360} = \dfrac{1}{4}$.

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