

**TMT Formula Finder 20 ACT Prep V3**

1. How fast must you go if you plan on biking 20 miles in 3 hours?

$$d = r \cdot t$$

2. A certain square has a side length of 2 in. If cut along its diagonal into two triangles, what is the area of one of the triangles?

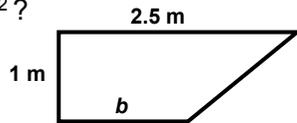
$$A = \frac{1}{2} \text{base} \cdot h$$

3. Find the radius of a circle with a circumference of 6.28 ft.

$$C = 2\pi r$$

4. What is the base  $b$  of the following trapezoid if it has an area of  $2 \text{ m}^2$ ?

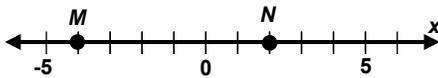
$$A = \left(\frac{b_1 + b_2}{2}\right)h$$



5. A right triangle's second leg is twice as long as it's first. If the hypotenuse is 125 cm long, how long is the first leg?

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

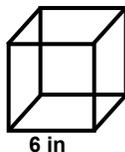
6. Find the midpoint of  $M$  and  $N$ :



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

7. What is the surface area of the following cube?

$$SA = 2lw + 2lh + 2wh$$



8. What is the central angle of a sector with a radius of 5 mm and an arc length of 20 mm?

$$S = \theta r$$

9. What would be the corresponding inscribed angle for the central angle of the previous problem?

$$\text{inscribed angle} = \frac{1}{2} \text{central angle}$$

10. Describe a line perpendicular to one that goes through  $(5, 1)$  and  $(-13, 3)$ .

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

11. What is the radius of a cylindrical bottle whose height is equal to its diameter, given that the volume of the bottle is  $128\pi \text{ in}^3$ ?

$$V = \pi r^2 h$$

12. The pizza remaining after dinner has a central angle of  $135^\circ$  and a radius of 8". What is the area of the remaining pizza?

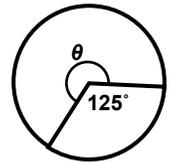
$$A = \left(\frac{\text{deg}}{360}\right) \pi r^2$$

13. The equation  $y = 2x^2 + 19x - c$  gives the solutions  $x = -10$  and  $x = \frac{1}{2}$ . Find  $c$ .

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

14. Find  $\theta$  in radians:

$$\text{degrees} \cdot \left(\frac{\pi}{180}\right) = \text{radians}$$



15. What is the equation for a circle with its center on the origin and a radius of 20 un?

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

16. What is the area of an acute triangle with two sides 6 mm and 10 mm, respectively, and the angle between the two sides  $45^\circ$ ?

$$A = \frac{1}{2} ab \sin C$$

17. What is the total number of degrees in an octagon?

$$\text{sum int. angles} = 180^\circ \cdot (n-2)$$

18. A tree leaning to one side is tied to a 20 ft rope, which is then nailed into the ground to keep the tree from leaning further. If the rope was tied 15 ft up from the base of the tree and nailed 5 ft away from the tree, at what angle is the tree leaning?

$$c^2 = a^2 + b^2 - 2ab \cos C$$

19. Miguel just won a free trip to a concert for him and 2 of his friends. If he has 8 friends who want to go, how many different groups of friends could he take?

$$nC_r = \frac{n!}{(n-r)!r!}$$

20. Peter's house is 10 mi from Shanna's. Peter's house is  $P(1, -3)$  and Shanna's is located at  $(6, y)$ . Solve for  $y$ .

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