

1. Simplify: $\sqrt{180}$
2. Indicate whether each of the following numbers is a rational or an irrational number.
(a) -3 (b) $\frac{4}{5}$ (c) $2\sqrt{7}$ (d) $\sqrt{3+5}$
3. Simplify: $\sqrt{216}$
4. Indicate whether each of the following numbers is a rational or an irrational number.
(a) $\sqrt{1+9}$ (b) -4 (c) $5,\overline{19}$ (d) π
5. Simplify: $\sqrt{12}$
6. Indicate whether each of the following numbers is a rational or an irrational number.
(a) π (b) $\sqrt{3+5}$ (c) $\frac{5}{6}$ (d) $4\sqrt{2}$
7. Indicate whether each of the following numbers is a rational or an irrational number.
(a) $5.\overline{63}$ (b) $3\sqrt{7}$ (c) $4+\pi$ (d) $\sqrt{\frac{80}{5}}$
8. Simplify: $\sqrt{135}$
9. Indicate whether each of the following numbers is a rational or an irrational number.
(a) $5\sqrt{3}$ (b) $\sqrt{1+9}$ (c) $2,\overline{88}$ (d) -5

Simplify:

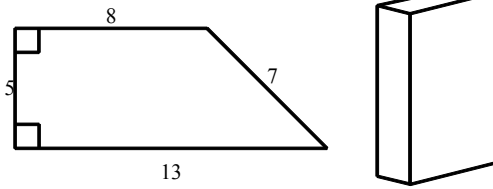
10. $\sqrt{18}$
11. $\sqrt{54}$ [A] $6\sqrt{6}$ [B] $3\sqrt{6}$ [C] $9\sqrt{2}$ [D] $6\sqrt{3}$
12. Indicate whether each of the following numbers is a rational or an irrational number.
(a) -2 (b) $\frac{2}{3}$ (c) $2\sqrt{5}$ (d) $\sqrt{3+5}$

13. Evaluate. Do not use a calculator. $\sqrt{121} + \sqrt{49} - \sqrt{196} + \sqrt{144}$

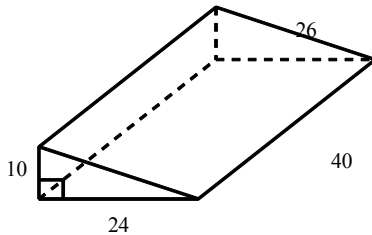
14. $\sqrt{12}$ is between what two consecutive whole numbers?

15. Simplify: $-5\{[(-6-3)-(-5^0-2)-4]-6\} \pm \sqrt{4}$

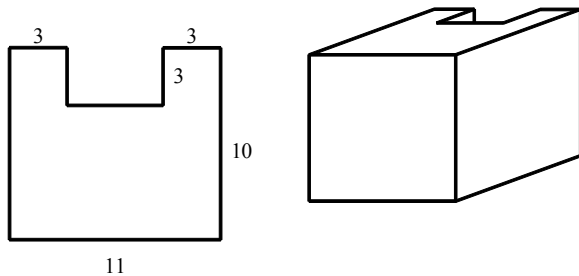
16. A base of a right prism whose height is 10 feet is the trapezoid shown. Find the surface area of the prism. Dimensions are in feet.



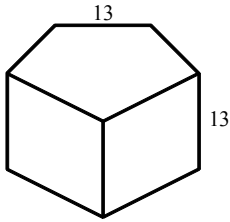
17. Find the volume and the total surface area of the right triangular prism. Dimensions are in inches.



18. A base of a right prism whose height is 11 inches is shown. Find the volume of the prism. All angles are right angles. Dimensions are in inches.



19. Find the lateral surface area of this right prism whose bases are regular pentagons. Dimensions are in feet.



20. The experimental drug caused side effects in 46% of those who took it. If 3358 experienced side effects, how many people took the experimental drug?
21. The cost of building a house increases 30 percent every year. If it costs \$81,000 to build a house this year, what would it cost to build a house next year?
22. The school being featured in a newspaper article caused the number of students enrolled to increase by 180 percent. If 210 students were enrolled before the article, how many were there after the article?

Graph:

23. $y = x - 4$

24. $y = 2x + 2$

25. $y = -4$

26. Simplify. Write the answer with all variables in the denominator. $\left(\frac{5^0 x^4 y^{-2}}{2z^{-2}}\right)^{-2} \left(\frac{4x^3 z^{-3}}{3y^{-2}}\right)$

27. Simplify. Write the answer with all exponents positive. $\left(\frac{5x^{-4} p^3}{y^{-4}}\right)^{-2} \left(\frac{y^4 p^5}{x^2}\right)^{-2}$