

Do not use calculators, books, notes, or help from others. Give yourself one hour of undistracted time to solve all problems.

1. Evaluate the following. Show every step. Do not use calculators. Do not use decimals.

(a) $5(2 - (-3)) =$

(b) $5 - (2(-3)) =$

(c) $\frac{3}{5} - \frac{2}{3} =$

(d) $\frac{3}{5} \cdot \frac{2}{3} =$

(e) $\frac{3}{5} \div \frac{2}{3} =$

(f) $3 \cdot \frac{5}{2} + \frac{4}{3} =$

(g) $3 \frac{5}{2} + \frac{4}{3} =$

(h) $3 - \frac{5}{2} + \frac{4}{3} =$

(i) $\frac{10 + 5(7 - (1 - (-2)))}{20 - 3(2 - 1) - 2} =$

(j) $\sqrt[3]{64} - 2\sqrt{25} + \sqrt[3]{-8} =$

(k) $\sqrt{-8^2} + (\sqrt[5]{121})^5 =$

(l) $-2^2 + (-3)^2 + \sqrt{16} =$

(m) $-\frac{2}{3}^2 =$

(n) $-\frac{2}{3}^2 =$

(o) $-\frac{2^2}{3} =$

(p) $\frac{\frac{1}{2} + \frac{7}{2}}{\frac{3}{4} - \frac{5}{4}} =$

(r) $\frac{2 - \frac{1}{3}}{\frac{3}{2} + \frac{1 - \frac{1}{2}}{3}} =$

2. Find the circumference and the area of a circle with radius 3 inches.

Circumference:

Area:

3. Find the area, perimeter, and diagonal of a rectangle with dimensions 2 in by 5 in.

Area:

Perimeter:

Diagonal:

4. Find the area, perimeter, and diagonal of a square of side length 5 in.

Area:

Perimeter:

Diagonal:

5. The length of a rectangle is twice the width. The perimeter is 60 in. Find the dimensions of this rectangle.

Length:

width:

6. Find the volume and the surface area of a box with length 3 in, width 2 in and height 10 in.

Volume:

Surface area:

7. Find the volume of a can in the shape of a cylinder with height 5 ft and radius of the base 4 ft.

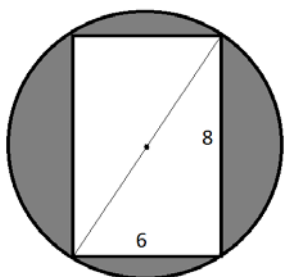
Volume:

8. Find the area and perimeter of the right triangle with legs of lengths 3 cm and 4 cm.

Area:

Perimeter:

9. A rectangle with dimensions 8 by 6 is inscribed in a circle, as shown on the picture. Find the area of the shaded region.



Area of the shaded region:

10. A sweater costs \$200. If you have a coupon for 20% off and a coupon for \$30 off, which coupon will save you more money? How much will you save when you purchase this sweater with the coupon?

Better coupon:

Money you save using this coupon:

11. Your salary increases from \$50,000 by 4%. What is your new salary? If the tax rate is 12% by how much did your tax increase (in dollars)?

New salary:

The taxes increased by:

12. Draw a line passing through points $A(2, 0)$ and $B(-6, 0)$. What is the slope of this line?

Drawing:

Slope:

13. Put the following numbers in an increasing order: $\frac{1}{3}, \frac{1}{2}, \frac{3}{5}, \frac{3}{2}, \frac{5}{6}$

Fractions in an increasing order:

14. Your grandmother has \$8,000. She gives half to your mother. Your mother gives half of her money to you. You give half to your sister, and your sister gives half to her friend. The friend gives half to charity. How much money does each now have?

Grandmother:

Mother:

You:

Sister:

Sister's friend:

Charity:

15. Expand and simplify:

(a) $2x(3x - 1) + 3x^2 - 7x =$

(b) $(3x + 2)(4x - 1) =$

(c) $(2x - 3)^2 =$