

Fundamentals of Arithmetic MATH Brush-Up Session

If you placed into ABE Math, MATH 60 or a higher-level course, this might be useful for you

Order of Operations, Ratios & Proportions

P arentthesis (inside) or []

E xponents 2^3

M ultiplication

D ivision

A ddition +

S ubtraction -

Order of Operations

1. Parentheses and other grouping symbols
2. Exponents
3. Multiplication and division from left to right
4. Addition and subtraction from left to right

(P lease!)

E^x cuse

M y^x

D ear

A unt

S ally!

Simplify.

1. $36 \div 3^2 + 4$

2. $72 + 30 \div 5 + 2 \times 2^3$

3. $9 - \left(\frac{1}{2}\right)^2 \cdot \frac{8}{9}$

4. $\left(\frac{1}{2}\right)^2 \cdot (5.8 - 1.8) \left(\frac{3}{5}\right)$

5. $35 - (25 - 17) + (12 - 10)^2 + 5 \cdot 2$

6. **Write as a ratio in simplest form.** 14 chairs to 12 people

7. **Find the unit rate. Then, state which car gets better gas mileage.**

A new Hybrid Toyota Prius can travel 135 miles on just 3 gallons of gas, while a new Hybrid Honda Civic 164 miles on just 4 gallons of gas.

Solve the proportions.

8. $\frac{15}{x} = \frac{6}{4}$

9. $\frac{5}{9} = \frac{x}{2}$

10. $\frac{\frac{1}{2}}{y} = \frac{\frac{1}{3}}{12}$

11. $\frac{0.4}{1.2} = \frac{1}{x}$

12. In a class of 28 students there are 5 books for every 2 students. How many books are there?

Answer key:

- | | | | | | |
|---|-------------|--------------------------------------|------------------|-------|-------------------------|
| 1. 8 | 2. 94 | 3. $8\frac{7}{9}$ | 4. $\frac{3}{5}$ | 5. 41 | 6. 7 chairs to 6 people |
| 7. Prius is better, 45mpg compared to 41mpg | 8. $x = 10$ | 9. $x = \frac{10}{9} = 1\frac{1}{9}$ | | | |
| 10. $y = 18$ | 11. $x = 3$ | 12. 70 books | | | |

Need more help? Check out these ModumathAlgebra Lessons #1 and Modumath Basic Math Lessons # 2.8
<http://modumath.org/mm/GraysHarbor.html>