

Math Encounters Ch. 1 Review
Show all work for full credit.

Name: _____ Per: _____

Apply the order of operations to simplify each expression.

1. $11 - 8(9 - 5) \div 2^2$

2. $5 + 8 \cdot 2 - 4$

3. $6 + 10 \div (3 + 2)$

4. $\frac{20 + 4}{4 + 3^2 - 1}$

Polynomials – Simplify by combining like terms.

5. $2(a + 5b)$

6. $6y - (9 - 8y)$

7. $2w^2 - 4w^3 + 6w - 3 + 3w^3 - 2w + 4$

8. $3(x^2 + 4x) + -4x - 8$

Equations – Solve each equation showing all work.

9. $4x - 7 = 25$

10. $-\frac{2}{3}a + 5 = -7$

11. $3(x + 1) - 1 = -14$

12. $-30x + 1 = 18x$

13. $8x + 3 = 3x + 18$

14. $-4x - 5 = -2(3x - 6)$

15. $-4(2x - 1) + 3 = 7 - 12x$

Remember it will be easier to solve the following if you get rid of the fractions first!

16. $\frac{2}{3}x + 4 = -3\frac{1}{2}$

17. $\frac{5}{6} + \frac{3}{4}x + \frac{1}{2} = \frac{1}{2}x - \frac{2}{3}$

Proportions – Solve each of the following for x.

18. $\frac{2x}{5} = \frac{9}{11}$

19. $\frac{x-3}{9} = \frac{7}{8}$

20. $\frac{3x+4}{7} = \frac{5x-1}{3}$

Solve the following percent problems – showing the set up for each problem.

21. What is 35.1% of 140?

22. What percent of 80 is 5.12?

23. 7% of what number is 10.5?

24. 4.05 is what percent of 90?

Evaluate each formula using the given values of the variables.

25. Convert -45° Celsius to Fahrenheit

26. Simple Interest: $I = Prt$,

using the formula $F = \frac{9}{5}C + 32$

Find r if $I = \$60$, $P = \$2500$, and $t = 3$ years.

Solve each formula for the indicated variable.

27. $A = \frac{1}{2}bh$ for h

28. $2x - 3y = 24$ for y

29. $P = 2L + 2W$ for W

Express each ratio in simplest form.

30. 80 seconds : 3 minutes

31. $51w : 17w$

32. 150 mm : 5 m

Write an algebraic expression for each statement given. (Let x represent the unknown.)

33. Five less than the product of eight and a number

34. Twice the difference of a number and nine is twenty.

Applications – be sure to show the set-up/formula used on each question. No credit will be given for answers alone.

35. It takes $1\frac{1}{2}$ cups of sugar to make 3 dozen chocolate chip cookies. How many cups of sugar will be needed to make 60 cookies?

36. Renee scored 11 points lower on her biology test than she did on her history test. The sum of her two grades was 185. What did she score on each test?

37. Tushar earned a 94, 95, 87, 85 and 84 on his tests. What must he score on the sixth test in order to have an average score of 90?

38. During three summer months, Anna earned \$925. In August she earned twice as much as in July, and in June she earned \$25 less than in August. How much did she make in each month?

39. Your salary goes from \$10.50/hr to \$12.50/hr. What was the percent increase?