

MA 90 Study Guide

1. Add, Subtract, Multiply, and Divide fractions and mixed numbers with uncommon denominators. Final answers must be reduced to simplest terms.
 - a) $2/4 + 1/3 =$
 - b) $7/8 - 3/16 =$
 - c) $5/6 * 3/4 =$
 - d) $12/20 \div 2/4 =$
2. Find 33.5% of 3000.
3. Evaluate: $(4)(2/5) - (4/2)(-1/3) =$
4. Evaluate: $6^2 - 20 + 4 * 8^2$
5. Evaluate: $(x + 5y)(2z)$ for $x = -z$; $y = 6$; and $z = -2$
6. Convert the decimal to a percentage: .753
7. If $1/3$ of a number is -8 , what is $1/4$ of that number?
8. Evaluate the expression: $-2[36 - (6-8)] =$
9. What is the absolute value of $|6 - 20|$.
10. Judy runs 4.5 miles per hour. This is 75% of Mary's speed. How many miles per hour does Mary run?
11. $f(x) = 4x^4 - x^2 + 9$. Find $f(-4)$.
12. Evaluate: $(3)(2/6) - (5/3)(-1/3) =$
13. Put the following numbers in order from least to greatest using inequality signs:
 $7/8$, .89, and 89%
14. Find the solution for the equation $6(y - 5) = 12y + 36$.
15. Find the solution for the inequality $-7u + 2 > 5u - 1$.
16. Solve the equation $T = \frac{(6x + y)}{4}$ for y .
17. Simplify: $(9x^3 + 2x^2 - 2x + 11) - (6x^3 - 7x + 7)$
18. Multiply and give your answer in simplest form:

$$(7x - 3)(2x + 4)$$

19. Find the solution set of the equation: $5x^2 + 11x + 5 = 0$
20. Graph $x^2 + 12x + 32$. Give the vertex and roots of the solution.
21. A bag contains 175 coins. The bag was emptied into 3 piles so that the second pile has twice as much as the first pile and the third pile has 15 coins more than the first pile. How many coins are in the first pile?
22. If a baker can buy flour for \$3.96 for 3 pounds, how much will the baker pay for 10 pounds?
23. Solve the following: $\frac{(2^{-3})(2^4) + 6^0}{3^2}$
24. Simplify: $(4a^{-4}b^{-2})^3$
25. Simplify the scientific notation expression: $\frac{(8 \times 10^3)(3 \times 10^{-4})}{4 \times 10^3}$
26. Factor $4x^2 - 6x = -2$
27. Factor $8x^4 - 4x^3 + 10x^2$.
28. Find the solution set of the equation $x^2 - 10x + 24 = 0$.
29. Simplify $\frac{x + 6}{x^2 + 5x - 6} =$
30. Multiply and simplify:
- $$\left(\frac{5r + 5}{r - 2}\right)\left(\frac{r - 2}{5}\right)$$
31. During their summer vacation Sarah's family traveled to their destination at an average speed of 50 mph. Coming home Sarah's family traveled at an average speed of 40 mph, and the return trip took $\frac{1}{2}$ hour longer. How many hours did her return trip take?

Please see MA 90 Study Guide Answer Key below:

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1. a) $\frac{5}{6}$
b) $\frac{11}{16}$
c) $\frac{5}{8}$
d) $1\frac{1}{5}$
2. 1005
3. $2\frac{4}{15}$
4. 272
5. -128
6. 75.3%
7. -6
8. -76
9. 14
10. 6 mph
11. 1017
12. $1\frac{5}{9}$
13. $\frac{7}{8} < 89\% \leq .89$
14. $y = -11$
15. $u < \frac{1}{4}$
16. $y = 4T - 6x$
17. $3x^5 + 2x^2 5x + 4$
18. $14x^2 + 22x - 12$
19. (-.642, -1.558)

20. vertex is (-6,-4)
roots cross x-axis at -8 and -4
parabola opens up
21. 40 coins are on the first pile
22. \$13.20
23. $\frac{3}{9} = \frac{1}{3}$

24. $\frac{4^3}{a^{12}b^6}$
25. 6×10^{-4}
26. $2(2x - 1)(x - 1)$
27. $2x^2(4x^2 - 2x + 5)$
28. $(x - 4)(x - 6)$
29. $\frac{1}{x - 1}$
30. $r + 1$
31. 2.5 hours