

Math 007: Test 1 (September 15, 2006) Answers included at the end!

[marks]

[2] 1. Insert $<$ or $>$ signs between the numbers.

(a) -5 6

(b) $|6|$ $|-10|$

(c) -2 $|-1|$

(d) -7 -5

For questions 2 to 10, simplify.

If the question involves fractions, do not change them into decimal form.

[2 each] 2. $|13| + |-2|$

3. $\frac{5}{6} + \frac{2}{9}$

4. $9x - (2x) - (-5x)$

5. $-4(2x^2 - x + 5)$

6. $8 + 7 \cdot \frac{(7-4)^2}{4(5)+1} - (-3)$

7. $-5(a-6) + 7(11-2a)$

8. $\frac{2x}{5} - \frac{11x}{4}$

9. $\frac{1}{5} \left(\frac{15}{2}x + 8xy \right)$

10. $\frac{3}{11} \div \frac{1}{5}$

11. Evaluate if $a = -2$ and $b = 3$:

$$\frac{5a^2 + a^3}{2b + 7}$$

For questions 12 to 24, solve the equations. If the question involves fractions, do not switch to decimals. If the question involves decimals, round answers to three decimal places.

[2 each] 12. $-\frac{9}{8}x = 45$

13. $9x - 4 = 14$

14. $5x - 7(2x - 9) = 8 - 4x$

15. $3x - 9 = 2 - 4x$

16. $-\frac{5}{6} = x - \frac{1}{4}$

17. $2.7x - 0.132 = x + 0.77$

$$18. \frac{13}{15} = \frac{1}{5} - \frac{3x}{4}$$

$$19. 11z - 3 - 7z = 9$$

$$20. 6y + 2(2y + 3) = 16$$

$$21. 3[1 - (4x - 3)] = 4(15 + 3x)$$

$$22. 0.05(4 - x) + 0.1x = 0.32$$

$$23. 3a + 2[2 + 3(a - 1)] = 2(3a + 4)$$

$$24. 0.7x + 0.7(x + 20) = 200$$

[3 each]

25. A wire is cut into three pieces. The first piece is twice as long as the second piece, and half as long as the third piece. The whole wire is 14 cm long. How long are the pieces?

26. Eric invests \$2000 at a simple interest rate of 5% per year. How much interest has he earned after 18 months?

27. Rita earned \$60 interest on \$700 in three years. What was the simple interest rate?

28. A hat went on sale for 40% off. Dan bought the hat, and paid \$6.90 including 15% tax. What was the *original* price of the hat?

29. Find three consecutive even integers such that 3 times the middle one is 18 more than the sum of the first and the third.

30. A rental car costs \$19 per day. The first 400 kilometers are free, and after that it costs \$0.15 per kilometer. How far can you drive in 2 days for \$200?

Formulas: (note: just because a formula appears, doesn't mean you need to use it!)

Simple interest: $I = Prt$ Discount: $S = C - rC$ Markup: $S = C + rC$

Percent: $P \cdot B = A$ Speed/time/distance: $D = s \cdot t$

Answers: 1) All are $<$ 2) 15 3) $\frac{19}{18}$ 4) $12x$ 5) $-8x^2 + 4x - 20$ 6) 14 7) $107 - 19a$
 8) $-\frac{47x}{20}$ 9) $\frac{3}{2}x + \frac{8}{5}xy$ 10) $\frac{15}{11}$ 11) $\frac{12}{13}$ 12) -40 13) 2 14) 11 15) $\frac{11}{7}$ 16) $-\frac{7}{12}$
 17) 0.531 18) $-\frac{8}{9}$ 19) 3 20) 1 21) -2 22) 2.4 23) $\frac{10}{3}$ 24) 132.857
 25) 4 cm, 2 cm and 8 cm. 26) \$150 27) 2.857% 28) \$10 29) 16, 18, and 20
 30) 1480 km