ASSET 1

Practice Placement Test—Numerical Portion

You should not use a calculator to work these problems

Fractions:

1. $\dfrac{2}{5} + \dfrac{3}{10} =$ a) $\dfrac{1}{2}$ b) $\dfrac{7}{10}$ c) $\dfrac{3}{5}$ d) $\dfrac{1}{3}$ e)Not Given

2. $7 - 2\dfrac{5}{8} =$ a) $4\dfrac{5}{8}$ b)4   c) $4\dfrac{3}{8}$ d)4.75   e)Not Given

3. $3 \times \dfrac{5}{6} =$ a) $2\dfrac{1}{2}$ b) $\dfrac{5}{6}$ c)2.75   d) $3\dfrac{5}{6}$ e)Not Given

4. $\dfrac{5}{6} \div \dfrac{2}{3} =$ a) $\dfrac{2.5}{2}$ b)1.5   c)1.75   d)1.25   e)Not Given

5. As part of an exercise program, Hugo is to walk 7/8 of a mile each day. He has already walked 1/3 of a mile. How much further should he walk?

   a) $\dfrac{13}{24}$ mile   b) $\dfrac{2}{3}$ mile   c) $\dfrac{1}{2}$ mile   d) $\dfrac{1}{4}$ mile   e)Not Given

6. Carla got a scholarship for 1/3 of her college tuition costs. If the tuition was \$5,400, what was the amount of her scholarship?

   a)\$2,000   b)\$1,850   c)\$1,700   d)\$1,800   e)Not Given

Decimals:

7. $13 - 8.765 =$

   a)5.210   b)4.235   c)4.765   d)5.235   e)Not Given

8. $0.2 \times 0.3 \times 0.4 =$

   a)0.24   b)0.0024   c)0.024   d)0.09   e)Not Given

9. $15.2 + 0.026 + 0.0083 =$

   a)15.2343   b)17.83   c)16.424   d)30.4256   e)Not Given

10.   A group of 8 cyclists paid $47.60 for food for a picnic. What is each person's share of the cost?

   a)6.00   b)5.90   c)5.85   d)5.95   e)Not Given

Powers and Roots

11. $2^5 =$ a)10   b)32   c)64   d)24   e)Not Given

12. $5^3 =$ a)15   b)100   c)125   d)150   e)Not Given

13. $\left(\dfrac{3}{4}\right)^2$ a)$\dfrac{6}{8}$ b)$\dfrac{16}{9}$ c)$\dfrac{9}{16}$ d)0.75   e)Not Given

14. $\sqrt{81}$ a)7   b)6   c)8   d)9   e)Not Given

Percents:

15.   Change $\dfrac{5}{8}$ to a percent.

   a)60%   b)58%   c)62.5%   d)61.5%   e)Not Given

16.   Write 3.2 as a percent.

   a)32%   b)320%   c)3200%   d)32,000%   e)Not Given

17.   What is 35% of 80?

   a)28   b)30   c)27   d)35   e)Not Given

18.   13 is what percent of 20?

   a)60%   b)63%   c)65%   d)68%   e)Not Given

19.   In a medical study, it was determined that if 800 people kiss someone who has a cold, only 56 will catch a cold? What percent is this?

   a)6.5%   b)7%   c)7.5%   d)7.2%   e)Not Given

20.   Miguel earns $20,400 one year and receives an 8% raise in salary. What is his new salary?

   a)20,800   b)22,000   c)21,032   d)22,032   e)Not Given

Ratios and Proportions:

21.   A TV has a screen that is 20 inches long and 15 inches wide. Write, in simplest terms, the ratio of length to width.

a) $\dfrac{4}{3}$ b) $\dfrac{3}{4}$ c) $\dfrac{1}{2}$ d) $\dfrac{2}{3}$ e)Not Given

22.   Impulses in nerve fibers travel 310 km in 2.5 hours. What is the rate, or speed, in kilometers per hour?

a)143 km/hr   b)127 km/hr   c)126 km/hr   d)124 km/hr   e)Not Given

23.   Solve this proportion for the missing number: $\dfrac{125}{35} = \dfrac{?}{7}$

a)25   b)30   c)35   d)40   e)Not Given

24.   In a class of 40 students, on average, 6 will be left-handed. If a class includes 9 "lefties", how many students would you estimate are in the class?

a)50   b)60   c)45   d)55   e)Not Given

25.   In a metal alloy, the ratio of zinc to copper is 3 to 13. If there are 520 pounds of copper, how many pounds of zinc are there?

a)52   b)100   c)120   d)150   e)Not Given

Elementary Algebra Portion

Math Sentences Part 1:
Solve the following linear equations:

26. $3 = 2x + 5 - 3(x - 1)$

a)x = –5   b)x = –1   c)x = 5   d)x = 1   e)x = –2

27. $\dfrac{3}{4}x - 3 = \dfrac{1}{2}x + 2$

a)x = 20   b)x = 10   c)x = 4   d)x = –4   e)none of these

28. $0.9y + 3 = 0.4y + 1.5$

a)y = 9   b)y = 5   c)y = –3   d)y = –9   e)y = 3

29. $0.8x + 0.18 - 0.4x = 0.3(x + 0.2)$

a)x = –.12   b)x = 4.2   c)x = 4.4   d)x = –1.2   e)x = 2.4

Evaluate:

30. What are all the real values of x that are solutions for the inequality $|x - 2| \leq 6$?

  a) $-8 \leq x \leq -4$ b) $-8 \leq x \leq 4$ c) $-8 \leq x \leq 8$ d) $-4 \leq x \leq 4$ e) $-4 \leq x \leq 8$

Math Sentences Part 2:
Solve these inequalities

31. $2 - 3x \leq -5 + 4x$

  a) $x \leq -1$ b) $x \leq 1$ c) $-3 \leq x$ d) $x \geq 3$ e) $x \geq 1$

32. $5 - 1/2x > 4$

  a) $x > 2$ b) $x > 8$ c) $x < 2$ d) $x > 18$ e) none of these

33. $4y \geq 2(12 - 2y)$

  a) $y \geq 4$ b) $y \geq 3$ c) $y \geq 0$ d) $y \leq 4$ e) none of these

34. Is the ordered pair (6,0) a solution to this system of equations? $X + y = 6$ or $-2x + y = -3$

  a) yes   b) no   c) cannot be determined

Operations on Polynomials:

35. $(6x + 3y)(2x - 4y)$
  a) $12x^2 - 5xy - 12y^2$ c) $12x^2 - 15xy - 12y^2$
  b) $12x^2 - 18xy - 12y^2$ d) $12x^2 + 18xy - 12y^2$

36. $y[y(y + 4) - 6]$
  a) $y^3 + 4y^2 - 6$ d) $y^3 - 6y^2 - 24$
  b) $y^3 + 4y^2 - 2$ e)   none of these
  c) $y^3 - 24y^2 - 6$

37. $(-2x^2)(x^2 + 3xy - 4y^2)$
  a) $2x^4 + 6xy - 8x^2y$ c) $-2x^2 - 6xy - 8x^2y$
  b) $-2x^4 - 6x^3y + 8x^2y^2$ d) $-2x^4 + 6xy - 8x^2$

38. Factor completely: $15x^3y - 9x^2y^2$
  a) $x^3y - 9x^2y^2$ d) $15xy - 9x^2y$
  b) $15x^2y - 9x^3y^2$ e)   none of these
  c) $5x^3y - 3x^2y^2$

39. Factor completely: $3ax - 7a - 6x + 14$
  a) $(a - 2)(3x - 7)$ d) $(a - 4)(3x + 7)$
  b) $(3x + 7)(a + 2)$ e)   none of these
  c) $(3x - 7)(a + 2)$

40.   Factor completely: $x^2 - 10x + 24$

   a) $(x + 2)(x - 12)$
   b) $(x + 6)(x + 4)$
   c) $(x - 2)(x + 12)$
   d) $(x - 6)(x - 4)$
   e)   none of these

41.   Factor completely: $4x^2 + 7x - 15$

   a) $(4x - 5)(x + 3)$
   b) $(2x - 5)(2x + 3)$
   c) $2(x + 3)(x - 3)$
   d) $2(x - 3)^2$
   e)   none of these

42.   Factor completely: $2x^2 - 18$

   a) $2(x^2 - 9)$
   b) $(2x + 3)(2x - 3)$
   c) $2(x + 3)(x - 3)$
   d) $2(x - 3)^2$
   e)   none of these

Radicals

43. $\left(\sqrt{2a^3}\right)\left(\sqrt{8b^2}\right)$

   a) $4ab\sqrt{2a}$

   b) $4b\sqrt{a}$

   c) $2b\sqrt{a}$

   d) $8ab\sqrt{a}$

   e)   none of these

44. $\left(\sqrt{11} + 2\right)\left(2\sqrt{11} - 1\right)$

   a) $2\left(\sqrt{11} + 2\right)$

   b) $\left(\sqrt{11} + 2\right) + \left(\sqrt{11} + 2\right)$

   c) $20 + 3\sqrt{11}$

   d) $20 + 10\sqrt{11}$

   e)   none of these

45. $\sqrt[3]{16x^4y^7}$

    a) $2xy^3\sqrt{xy}$

    b) $4xy^3\sqrt{xy}$

    c) $8xy^3\sqrt{xy}$

    d) $2xy^2\sqrt[3]{2xy}$

    e)   none of these

Numerical

1. B	14. D
2. C	15. C
3. A	16. B
4. D	17. A
5. A	18. C
6. D	19. B
7. B	20. D
8. C	21. A
9. A	22. D
10. D	23. A
11. B	24. B
12. C	25. C
13. C	

Elementary Algebra

26. C	32. C	38. E	43. E
27. A	33. B	39. A	44. C
28. C	34. B	40. D	45. D
29. D	35. B	41. A	
30. E	36. E	42. C	
31. E	37. B	43. E	