

1. At a college, 80% of the all students are from Illinois, and 20% of the Illinois students are from Chicago. What percent of all the students are from Chicago?

- A. 1.6%
- B. 1600%
- C. 16%
- D. 60%
- E. 40%

2. Which of the following is equal to 7.15×10^5 ?

- A. 715
- B. 7150
- C. 71,500
- D. 715,000
- E. 7,150,000

3. What is the average of 8, 7, 7, 5, 3, 2, 2 ?

- A. $3\frac{4}{7}$
- B. $4\frac{5}{6}$
- C. $4\frac{6}{7}$
- D. 5
- E. $6\frac{4}{5}$

4. If a discount of 30% of the marked price of a TV saves Sue \$90, how much did she pay for the TV?

A. \$270

B. \$27

C. \$120

D. \$360

E. \$210

5. What fraction of an hour is the time from 8:50 a.m. to 9:14 a.m.?

A. $\frac{2}{5}$

B. $\frac{7}{30}$

C. $\frac{17}{30}$

D. $\frac{1}{6}$

E. $\frac{5}{12}$

6. Ben is making wooden toys for the next arts and crafts sale. Each toy costs Ben \$1.80 to make. If he sells each toy for \$3.00, how many will he have to sell to make a profit of exactly \$36.00?

A. 12

B. 20

C. 30

D. 60

E. 108

7. A team won 24 out of 30 games. What fraction of its games did it lose?
- A. $\frac{4}{5}$
B. $\frac{1}{4}$
C. $\frac{3}{4}$
D. $\frac{1}{5}$
E. $\frac{1}{6}$
8. Bob mowed $\frac{1}{4}$ of the lawn, and Janet mowed $\frac{2}{3}$ of the lawn. What fraction of the lawn is left to mow?
- A. $\frac{1}{12}$
B. $\frac{1}{4}$
C. $\frac{1}{3}$
D. $\frac{4}{7}$
E. $\frac{11}{12}$
9. How many yards of material from a 24-yard length of cloth remain after 3 pieces, each $3\frac{1}{2}$ yards long, and 5 pieces, each $2\frac{1}{4}$ yards long, are removed?
- A. $2\frac{1}{4}$
B. $4\frac{1}{4}$
C. $4\frac{3}{4}$
D. $10\frac{1}{4}$
E. $10\frac{1}{2}$

10. Jim uses 30 gallons of gasoline in a week. To the nearest gallon, how much gasoline does he use in 20 days?

A. 600

B. 4

C. 77

D. 95

E. 86

11. $20^4 \times 10^3$ is how many times larger than $20^2 \times 10^5$?

A. 200

B. 20

C. 400

D. 40

E. 4

12. Jose charged \$400 worth of goods on his credit card. On his first bill, he was not charged any interest, and he made a payment of \$20. He then charged another \$18 worth of goods. On his second bill a month later, he was charged 2% interest on his entire unpaid balance. How much interest was Jose charged on his second bill?

A. \$8.76

B. \$7.96

C. \$7.60

D. \$7.24

E. \$6.63

13. $0.0000076 = 7.6 \times 10^N$. What is N?

- A. -5
- B. -6
- C. -7
- D. 5
- E. 6

14. If on a map $\frac{1}{4}$ inch represents 100 miles, then $2\frac{1}{4}$ inches represents how many miles?

- A. 225
- B. 900
- C. $102\frac{1}{4}$
- D. 450
- E. 400

15. A merchant discounts an item 20% and then another 25%. This is equivalent to what single discount?

- A. 40%
- B. 42%
- C. 35%
- D. 50%
- E. 45%

16. If the enrollment goes down 25% one year and goes up 20% the next year, what is the net effect after these two years?
- A. Down 10%
 - B. Down 5%
 - C. No change
 - D. Up 5%
 - E. Up 10%
17. The distance from the Sun to Pluto is about 40 times the distance from the Sun to the Earth. The distance from the Sun to the Earth is 1.5×10^8 kilometers. How many kilometers is the Sun from Pluto?
- A. 60×10^9
 - B. 41.5×10^8
 - C. 4.15×10^8
 - D. 6×10^9
 - E. 6×10^8
18. The population of Beaverville was 2000 in the year 1960, and 10,000 in the year 2002. What was percent of population increase?
- A. 20%
 - B. 4%
 - C. 5%
 - D. 400%
 - E. 500%

19. Find the average of 0.6, $\frac{9}{10}$, and $\sqrt{0.25}$.

A. 0.7

B. $\frac{2}{3}$

C. $\frac{3}{4}$

D. 0.55

E. 65%

20. Curtis had an 80 average on his first 3 tests. After the fourth test, his average dropped to 75. What was his score on the fourth test?

A. 75

B. 66

C. 70

D. 60

E. 72

21. When -4 is subtracted from 10, the result is:

A. -6

B. -14

C. 14

D. -4

E. 6

22. If -3 is added to the product of -4 and 5, the result is:

- A. 17
- B. -12
- C. -17
- D. -23
- E. 23

23. If $x = 4.04$, what is the value of $\frac{x^2 - 16}{4x + 16}$?

- A. 0.01
- B. 0.04
- C. 1.01
- D. 1.04
- E. 4.01

24. A bottle of water is 80% full. After $\frac{3}{4}$ of the water is poured out, what percent of the bottle is empty?

- A. 10%
- B. 20%
- C. 25%
- D. 75%
- E. 80%

25. The average of 20 numbers is what percent of the sum of the 20 numbers?

- A. 20%
- B. 5%
- C. 10%
- D. 50%
- E. 2%

26. The length of a rectangle is 8 more than the width. If the width is w , what is the area?

- A. $2w + 8$
- B. $w^2 + 8$
- C. $w(w + 8)$
- D. $4w + 16$
- E. $w + 8$

27. The area of a circle with diameter 10 is:

- A. 20π
- B. 10π
- C. 5π
- D. 25π
- E. 100π

28. The area of a triangle is 36. Its height is twice as much as the base. The height is:

- A. 6
- B. 12
- C. 18
- D. 4
- E. 8

29. Which of the following expressions represents the product of 3 less than twice x and 2 more than the quantity 3 times x ?

- A. $-6x^2 + 25x + 6$
- B. $6x^2 + 5x + 6$
- C. $6x^2 - 5x + 6$
- D. $6x^2 - 5x - 6$
- E. $6x^2 - 13x - 6$

30. If $x = -1$ and $y = 2$, what is the value of the expression $2x^3 - 3xy$?

- A. 8
- B. 4
- C. -1
- D. -4
- E. -8

31. Let $820 + R + S - 610 = 342$. If $R = 25$, the $S =$

A. 107

B. 48

C. 132

D. 184

E. 192

32. A room is L yards by W yards. Carpeting costs C dollars per square yard. The total cost of the carpeting is:

A. $C + L + W$

B. CLW

C. $C(L + W)$

D. LW/C

E. $C + LW$

33. If $7M = 3M - 20$, then $M + 7 =$

A. 0

B. 2

C. 5

D. 10

E. 12

34. A cab charges 85 cents for the first quarter mile and 25 cents for each additional quarter mile. The total charge in cents for M miles is:
- A. $85 + 25(4M - 1)$
 - B. $85 + 25M$
 - C. $85 + 100M$
 - D. $85 + 100(M - 1)$
 - E. $85 + 100(4M - 1)$
35. A 20-gallon solution is 30% antifreeze. Five gallons of water are added. The percent of antifreeze is now:
- A. 24%
 - B. 25%
 - C. 35%
 - D. 15%
 - E. 32%
36. If $x(p + 1) = M$, the $p =$
- A. $\frac{M-1}{x}$
 - B. $M - x - 1$
 - C. $M - 1$
 - D. $\frac{M}{x}$
 - E. $\frac{M}{x} - 1$

37. From 9 a.m. to 2 p.m., the temperature rose at a constant rate from -14° to 36° . What was the temperature at noon?

- A. -4°
- B. 6°
- C. 14°
- D. 16°
- E. 26°

38. A school has B boys and G girls. What fraction of the school is boys?

- A. $\frac{B}{G}$
- B. $\frac{B}{B+G}$
- C. $\frac{B}{B-G}$
- D. $\frac{G}{B}$
- E. $\frac{B+G}{B}$

39. Solve for x: $\frac{x}{2} + \frac{x}{3} = 1$:

- A. $5/6$
- B. $6/5$
- C. $1/6$
- D. $1/5$
- E. $6/11$

40. For what x does $x + 3 = x - 3$?

- A. All numbers
- B. No numbers
- C. All positive numbers
- D. All negative numbers
- E. Numbers greater than 3

41. Solve for x : $x^2 - 2x - 15 = 0$

- A. 5 or -3
- B. 5 or 3
- C. -5 or -3
- D. -5 or 3
- E. None of the above

42. If P pounds of peanuts cost D dollars, then one pound of peanuts costs how many *cents*?

- A. $D/100P$
- B. P/D
- C. D/P
- D. $100P/D$
- E. $100D/P$

43. $\sqrt{12} + \sqrt{27} =$

A. $3\sqrt{5}$

B. $5\sqrt{3}$

C. $\sqrt{39}$

D. $3\sqrt{13}$

E. $13\sqrt{3}$

44. The difference between $\sqrt{150}$ and $\sqrt{54}$ is:

A. $2\sqrt{6}$

B. $6\sqrt{2}$

C. $\sqrt{96}$

D. $16\sqrt{6}$

E. $6\sqrt{16}$

45. If $2^3 = \sqrt{N}$, then N =

A. 8

B. 16

C. 32

D. 64

E. 128

46. If $(-2/5)^3 = N/1000$, then $N =$

A. 64

B. 32

C. -64

D. -100

E. -32

47. What is $16^{3/4}$?

A. 8

B. 7

C. 12

D. 9

E. 4

48. Jerry invests \$4000 at 5% interest. How much more money must he invest at 8% so that the total annual interest is equivalent to a 6% investment on the total amount?

A. \$1000

B. \$2000

C. \$3000

D. \$4000

E. \$5000

49. Add $\frac{n}{6} + \frac{2n}{5}$.

A. $11n/30$

B. $3n/11$

C. $3n/30$

D. $13n/30$

E. $17n/30$

50. If 5 is added to 3 times the reciprocal of a number, the result is 11. What is the number?

A. $5/3$

B. $5/11$

C. $1/2$

D. $2/5$

E. $11/5$

51. If $r = -2$, then $r^4 + 2r^3 + 3r^2 + r =$

A. -8

B. -4

C. 0

D. 6

E. 10

52. If for all x , $(x - 2)(x + k) = x^2 + mx - 10$, then $mk =$

- A. -20
- B. -15
- C. 12
- D. 15
- E. 20

53. Factor $3x^2y^3 - 6xy^2$.

- A. $3xy^2(x - 2y)$
- B. $3xy^2(xy + 2)$
- C. $3xy^2(xy - 2)$
- D. $3x^2y(x - 2y)$
- E. $3x^2y^2(x - 2)$

54. Which of the following is a common factor of $(x^2 - 4x - 5)$ and $(x^2 - 6x - 7)$?

- A. $x - 5$
- B. $x + 5$
- C. $x - 7$
- D. $x + 1$
- E. $x - 1$

55. Mr. Herman dies and leaves \$240,000 to his three sons: Al, Bob, and Chuck in a 3:2:1 ratio. What is Bob's share?

- A. \$40,000
- B. \$60,000
- C. \$80,000
- D. \$100,000
- E. \$120,000

56. If $a = -1$ and $b = -2$, then what is the value of $(2 - ab^2)^3$?

- A. 27
- B. 64
- C. 125
- D. 216
- E. 343

57. What is the distance between the points $(-1, 2)$ and $(2, 6)$?

- A. 3
- B. 4
- C. 5
- D. 6
- E. 7

58. What is $(3x - 5y)^2$?

A. $9x^2 + 25y^2$

B. $9x^2 - 25y^2$

C. $9x^2 - 30xy - 25y^2$

D. $9x^2 - 15xy + 25y^2$

E. $9x^2 - 30xy + 25y^2$

59. If $f(x) = x^3 + 1$ and $g(x) = 2 - x$, then $f(g(4)) =$

A. 9

B. -7

C. 65

D. 217

E. -215

60. $(12x^2 - 7x + 4) - (7x^2 - 3x - 5) =$

A. $5x^2 - 4x + 9$

B. $5x^2 - 10x - 9$

C. $5x^2 - 10x + 9$

D. $5x^2 - 10x - 1$

E. $5x^2 - 4x - 1$

61. If $x^2 - y^2 = 100$ and $x - y = 4$, then $x + y =$

- A. 96
- B. 46
- C. 25
- D. 10
- E. 14

62. Reduce $\frac{4x^2 - 9}{2x^2 + x - 3}$:

- A. $\frac{2x+3}{x-1}$
- B. $\frac{2x-3}{x+1}$
- C. $\frac{2x+3}{x+1}$
- D. $\frac{2x-3}{x-1}$
- E. $\frac{2x^2 - 3}{x^2 + x - 1}$

63. What is the equation of the line through (1, 3) and (5, 11)?

- A. $y = 3x$
- B. $y = x + 2$
- C. $y = x + 6$
- D. $y = 2x + 1$
- E. $y = 2x - 1$

64. Consider the system of equations:

$$\begin{aligned}2x + 3y &= 3 \\3x - 4y &= 13\end{aligned}$$

Then $x + y =$

- A. 4
- B. 2
- C. 16
- D. -4
- E. 3

65. A play sells a total of 2000 tickets. Some of the tickets were \$10 each, and the rest were \$5 each. The total amount of money from all the tickets was \$14,000. How many \$5 tickets were sold?

- A. 800
- B. 700
- C. 1200
- D. 1300
- E. 2800

ANSWERS

Item	Answer
1	C
2	D
3	C
4	E
5	A
6	C
7	D
8	A
9	A
10	E
11	E
12	B
13	B
14	B
15	A
16	A
17	D
18	D
19	B
20	D
21	C
22	D
23	A
24	B
25	B
26	C
27	D
28	B
29	D
30	B
31	A
32	B
33	B
34	A
35	A

Item	Answer
36	E
37	D
38	B
39	B
40	B
41	A
42	E
43	B
44	A
45	D
46	C
47	A
48	B
49	E
50	C
51	E
52	D
53	C
54	D
55	C
56	D
57	C
58	B
59	E
60	A
61	C
62	D
63	D
64	B
65	C