

1.  $496 + 694 =$  \_\_\_\_\_
2.  $175 \times 5 =$  \_\_\_\_\_
3.  $1213 - 1415 =$  \_\_\_\_\_
4.  $307 \div 9 =$  \_\_\_\_\_ (mixed number)
5.  $12.5\% =$  \_\_\_\_\_ (fraction)
6.  $7 - 4 \times 5 + 6 \div 18 =$  \_\_\_\_\_
7.  $19^2 =$  \_\_\_\_\_
8.  $11\%$  of 340 is \_\_\_\_\_
9.  $17.5 + 18.75 + 19.875 =$  \_\_\_\_\_ (decimal)
- \* 10.  $2334 + 1656 - 1066 - 788 =$  \_\_\_\_\_
11.  $74 \times 34 =$  \_\_\_\_\_
12. Which is larger: 0.38 or  $\frac{3}{8}$ ? \_\_\_\_\_
13.  $3997 \times 3 + 9 =$  \_\_\_\_\_
14. 6 yards – 6 feet – 6 inches = \_\_\_\_\_ inches
15. MMCCLXIV = \_\_\_\_\_ (Arabic numerals)
16.  $12^3 =$  \_\_\_\_\_
17.  $2 + 4 + 6 + 8 + \dots + 20 + 22 =$  \_\_\_\_\_
18.  $39^2 - 11^2 =$  \_\_\_\_\_
19. If 18  $\square$ 's cost \$12.24, then 6  $\square$ 's cost \$ \_\_\_\_\_
- \* 20.  $519 \times 521 =$  \_\_\_\_\_
21.  $22446 \div 6$  has a remainder of \_\_\_\_\_
22. 7 pecks = \_\_\_\_\_ quarts
23.  $5^2 + 5^4 =$  \_\_\_\_\_
24.  $3\frac{1}{4} \times 13\frac{1}{4} =$  \_\_\_\_\_ (mixed number)
25. Let  $x = -7$ . Find the value of  $7x - 1$ . \_\_\_\_\_
26.  $0.1888\dots =$  \_\_\_\_\_ (fraction)
27. Let  $A = \{1, 3, 4, 5\}$ ,  $B = \{2, 3, 5\}$ , and  $C = \{1, 2, 4\}$ . How many elements are in  $(A \cap B) \cup (A \cap C)$ ?  
\_\_\_\_\_
28. A train traveled 343 miles in 7 hours. Find its average speed. \_\_\_\_\_ mph
29. The multiplicative inverse of  $-1.5$  is \_\_\_\_\_
- \* 30.  $5\frac{3}{16} \times 4375 \div 68.75 =$  \_\_\_\_\_
31. 131 base 5 = \_\_\_\_\_ base 10
32. If  $x = 13$  and  $y = 7$ , then  $x^2 + 2xy + y^2 =$  \_\_\_\_\_
33.  $24^2 + 72^2 =$  \_\_\_\_\_
34. From the sequence 3, 1, 4, 5, 9, 14,  $p$ ,  $q$ , ..., find  $p + q$ . \_\_\_\_\_
35.  $(17 + 23 \times 19) \div 7$  has a remainder of \_\_\_\_\_
36. The sum of the positive integral divisors of 35 is \_\_\_\_\_
37.  $36\%$  of  $266\frac{2}{3}$  is \_\_\_\_\_
38.  $45 \times 61 =$  \_\_\_\_\_
39. If  $x + y = 11$  and  $y - x = 7$ , find  $y$ . \_\_\_\_\_
- \* 40.  $\sqrt{891 \times 1231} =$  \_\_\_\_\_
41. Let  $R$  and  $S$  be the roots of  $2x^2 - 3x = 5$ . Find  $RS + (R + S)$ . \_\_\_\_\_
42.  $16 \times 18 + 1 =$  \_\_\_\_\_

43. The diagonal of a square whose sides measure  $5\sqrt{2}$  cm is \_\_\_\_\_ cm
44.  $1\frac{2}{3} \div 7\frac{1}{7} =$  \_\_\_\_\_
45.  $4^7 \div 4^2 \times 4^{-3} =$  \_\_\_\_\_
46. Each central angle of a regular polygon measures  $45^\circ$ . How many sides does the polygon have?  
\_\_\_\_\_
47.  $\left(\frac{27}{64}\right)^{2/3} =$  \_\_\_\_\_
48. If  $3^{-1} + x^{-1} = 4^{-1}$ , find  $x =$  \_\_\_\_\_
49. The sixth triangular number is \_\_\_\_\_
- \* 50.  $12^2 \times 13 + 12^3 \times 1.4 =$  \_\_\_\_\_
51. How many faces meet at each vertex of a Platonic dodecahedron? \_\_\_\_\_
52.  $(3 - 7i) \div 4i = a + bi$ . Find  $a + b$ . \_\_\_\_\_
53.  $\frac{7!}{3!4!} =$  \_\_\_\_\_
54.  $281 \times 134 =$  \_\_\_\_\_
55. The odds of rolling a “2” on a single die is \_\_\_\_\_
56. The sum of the coefficients of the expansion of  $(2x + y)^5$  is \_\_\_\_\_
57.  $334_8 + 165_8 =$  \_\_\_\_\_  $_8$
58.  $5 + 1 + \frac{1}{5} + \frac{1}{25} + \dots =$  \_\_\_\_\_
59.  $\left(\frac{2}{5}\right)^3 \times \left(\frac{5}{6}\right)^2 \div \left(\frac{5}{12}\right) =$  \_\_\_\_\_
- \* 60.  $28.57 \div 0.0428 =$  \_\_\_\_\_
61. How many positive integers less than 24 are relatively prime to 24? \_\_\_\_\_
62. If  $\left| \begin{matrix} 3 & 5 \\ 4 & 7 \end{matrix} \right| = k - 2$ , then  $k =$  \_\_\_\_\_
63.  $\log_6 2 + \log_6 18 =$  \_\_\_\_\_
64.  $\tan\left(\frac{\pi}{4}\right) + \cos\left(\frac{\pi}{6}\right) \sin\left(\frac{\pi}{3}\right) =$  \_\_\_\_\_
65. Round  $\sqrt{3}$  to the nearest tenth. \_\_\_\_\_
66. Change 0.111 base 3 to a base 10 fraction. \_\_\_\_\_
67. The volume of a right circular cone with radius 7 cm and height 6 cm is  $k\pi \text{ cm}^3$ .  $k =$  \_\_\_\_\_
68.  $11^7 \div 8$  has a remainder of \_\_\_\_\_
69. If  $f(x) = 3x - 7$  and  $g(x) = 2x + 7$ , then  $f(g(2)) =$  \_\_\_\_\_
- \* 70.  $17^2 + 19^2 + 21^2 + 23^2 =$  \_\_\_\_\_
71. If  $3 \log_5(8x - 7) = 6$ , then  $x =$  \_\_\_\_\_
72. The domain of  $y = \sqrt{3x - 12} + 2$  is  $x \geq$  \_\_\_\_\_
73. The dot product of the vectors  $(3, -2)$  and  $(1, 7)$  is \_\_\_\_\_
74. Let  $f(x) = x^3 + 5x^2 + 7x - 8$ . Find  $f''(2)$ . \_\_\_\_\_
75. If  $f(x) = \frac{2x-3}{4x-5}$ , find  $f^{-1}(1)$ . \_\_\_\_\_
76. The sum of the 5th triangular number and 5th hexagonal number is \_\_\_\_\_
77. The vertical asymptote of  $g(x) = \frac{x+7}{x^2-49}$  is  $x =$  \_\_\_\_\_
78.  $\int_1^5 2x \, dx =$  \_\_\_\_\_
79.  $\lim_{x \rightarrow 0} \frac{\sin(2x)}{x} =$  \_\_\_\_\_
- \* 80. The area of the ellipse whose equation is  $81x^2 + 25y^2 = 2025$  is \_\_\_\_\_