MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

Mathematics Placement Test

Part of the Prerequisite for:
Mathematics 1000, 1050, 1051, and 1090

Online Sample Test

Mathematics Placement Test

Indicate the number of the correct answer on the answer sheet provided.

Questions	Answer Choices				
	1	2	3	4	5
Fractions: Preliminaries 1. Find the lowest common denominator of $\frac{1}{4}, \frac{1}{6}, \frac{1}{15}$	**24**	**30**	**3**	**60**	none of these
2 $\frac{3}{8} =$	$\frac{7}{18}$	$\frac{21}{56}$	$\frac{9}{16}$	$\frac{12}{24}$	none of these
3. $\frac{45}{81}$ = (in lowest terms)	$\frac{5}{9}$	$\frac{15}{27}$	$\frac{9}{16}$	$\frac{1}{2}$	none of these
4. Change $5\frac{1}{11}$ to an improper fraction	$\frac{6}{11}$	$\frac{56}{11}$	$\frac{56}{55}$	$\frac{5}{55}$	none of these
5. Find the prime factorization of **260**	4×65	10×26	$2 \times 2 \times 5 \times 13$	2×130	none of these
Fractions: Addition, Subtraction **For questions 6 to 15, reduce to lowest terms.** 6. $\frac{4}{7} + \frac{2}{3} =$	$\frac{6}{10}$	$\frac{26}{21}$	$\frac{3}{5}$	$\frac{8}{21}$	none of these
7. $5 - 2\frac{1}{3} =$	$3\frac{1}{3}$	$\frac{2}{3}$	$2\frac{2}{3}$	$3\left(-\frac{1}{3}\right)$	none of these
8. $1\frac{2}{5} + 5\frac{1}{2} =$	$6\frac{9}{10}$	$\frac{29}{10}$	$\frac{18}{7}$	$\frac{18}{10}$	none of these
9. $8\frac{2}{3} - 7\frac{3}{5} =$	$1 - \frac{1}{15}$	$1\frac{1}{15}$	$-\frac{1}{15}$	$-\frac{2}{5}$	none of these
10. $3\frac{1}{4} - 2\frac{2}{3} + 4\frac{1}{6} =$	$5\left(-\frac{1}{4}\right)$	$-5\frac{1}{4}$	$5 - \frac{3}{4}$	$4\frac{3}{4}$	none of these
Fractions: Multiplication and Division. 11. $\frac{2}{5} \times \frac{2}{5} =$	$\frac{4}{5}$	$\frac{4}{10}$	1	$\frac{4}{25}$	none of these
12. $\frac{2}{5} \div 3 =$	$\frac{2}{15}$	$\frac{6}{5}$	$\frac{6}{15}$	$\frac{2}{5}$	none of these

13. $2\frac{1}{3} \times 3\frac{1}{2} \times 1\frac{2}{5} =$	$6\frac{2}{30}$	$\frac{21}{10}$	$11\frac{13}{30}$	$6\frac{1}{15}$	none of these
14. $4\frac{3}{5} \div 5\frac{3}{5} =$	$\frac{28}{23}$	$\frac{23}{28}$	$\frac{4}{5}$	$\frac{5}{4}$	none of these
15 $\frac{\frac{4}{9} \times \frac{3}{8}}{\frac{1}{2} - \frac{1}{3}} =$	**1**	$\frac{1}{36}$	36	$\frac{1}{3}$	none of these
Decimals: 16. **0.3 + 0.7 + 0.6 =**	**1.6**	**0.16**	**0.016**	**0.316**	none of these
17. **0.001 ×7.23 =**	**0.723**	**0.00723**	**72.3**	**0.0723**	none of these
18. **4.3 × 2 × 0.003 =**	**0.00258**	**0.0258**	**2.58**	**0.258**	none of these
19. **0.00027 ÷ 9 =**	**0.0003**	$33333\frac{1}{3}$	**0.00003**	$3333\frac{1}{3}$	none of these
20. **1.8 ÷ 0.06 =**	$0.033\frac{1}{3}$	**30**	**0.3**	$0.0033\frac{1}{3}$	none of these
Percents: 21. **0.03% =**	**0.03**	**0.0003**	**3**	**0.003**	none of these
22. **0.23 =**	**230%**	**2.3%**	**23%**	**0.23%**	none of these
23. **11.3%** of **200 =**	**5.65**	**22.6**	**2260**	**56.5**	none of these
24. 3.2 is what percent of **80**?	**4%**	**25%**	**0.04%**	**0.25%**	none of these
25. **42** is **70%** of what number?	**6**	**2.92**	**29.2**	**60**	none of these
Order of Operation: 26. **15 – 6 × 2 =**	**18**	**3**	**12**	**9**	none of these
27. **5 + 15 ÷3 =**	$\frac{20}{3}$	**10**	**17**	**25**	none of these
28. **4 × 3 + 15 ÷ 5 =**	**15**	**11**	**21**	**5**	none of these
29. **24 ÷ 2 × 3 – 6 ÷ 3 + 9 =**	**39**	**43**	$9\frac{5}{6}$	**19**	none of these
30. **3 (8 × 3 ÷ 2 - 4) =**	**-36**	**13**	**24**	**26**	none of these

Laws of Signs: 31. $(-3)-(-2)+(-2)=$	**3**	**1**	**−1**	**−3**	none of these
32. $8+(-2)(-2)-4=$	**16**	**0**	**−2**	**8**	none of these
33. $8(-2)-(-3)(6)=$	**2**	**34**	**32**	**−2**	none of these
34. $-(-3)+0(-5)-(-3)5-5=$	**−13**	**7**	**13**	**8**	none of these
35. $0\div 4(-2)-(-9)(-2)+(-3)^2=$	**−9**	**−17**	**9**	**19**	none of these
Equations: 36. If $27v=9$, then $v=$	**3**	**−3**	$-\frac{1}{3}$	$\frac{1}{3}$	none of these
37. If $2K+3=K+1$, then $K=$	**1**	**3**	$\frac{1}{2}$	**−2**	none of these
38. If $4(y+2)-2y=2(2-3y)$, then $y=$	**2**	$\frac{1}{2}$	$-\frac{1}{2}$	**−2**	none of these
39. If $\frac{4x-3}{4}=\frac{x}{6}-7$, then $x=$	$\frac{15}{2}$	**−1**	**1**	$-\frac{15}{2}$	none of these
40. If $\frac{2}{K}-3=\frac{3}{4}$, then $K=$	$-\frac{8}{15}$	$\frac{8}{15}$	$-\frac{15}{8}$	$\frac{15}{8}$	none of these
Laws of Exponents: 41. $(x^4)(x^3)=$	$x^{4/3}$	x^7	x^{12}	x	none of these
42. When $m\neq 0$, $5m^0=$	5	0	5m	1	none of these
43. $(k^5)^3$	k^{15}	$k^{3/5}$	k^8	$k^{5/3}$	none of these
44. $(2x^2y^3)^3=$	$2x^5y^6$	$8x^6y^9$	$2x^6y^9$	$8x^5y^6$	none of these
45. $p^{12}\div p^3=$	p^{15}	p^4	$p^{1/4}$	p^9	none of these
Negative Exponents: 46. $3x^{-3}=$	$\left(\frac{3}{x}\right)^3$	$\frac{3}{x^3}$	$\frac{1}{3x^3}$	$-3x^3$	none of these

47. $\frac{m^3n^{-2}}{m^2n^{-1}} =$	$\frac{m}{n}$	mn	$\frac{n}{m}$	$\frac{m^5}{n^3}$	none of these
48. $4b^{-3}(ab)^4 =$	$256a^4b$	$\frac{a^4}{4b}$	$4a^4b$	$-4a^4b^7$	none of these
49. $2(x+y)^{-3} =$	$2(x^{-3}+y^{-3})$	$\frac{2}{x^3+y^3}$	$\frac{1}{2(x+y)^3}$	$\frac{2}{(x+y)^3}$	none of these
50 $\left(\frac{x^{-3}y^3}{x^3y^{-2}}\right)^{-3} =$	$\frac{x^{18}}{y^{15}}$	$\frac{y^{15}}{x^{18}}$	$\frac{x^6}{y^5}$	$x^{18}y^{15}$	none of these
Formula Rearrangement: 51. If $PV = nRT$, then $R =$	$PV - nT$	$\frac{PV-n}{T}$	$\frac{PV}{nT}$	$\frac{nT}{PV}$	none of these
52. If $P = 2x + 2y$, then $x =$	$\frac{P}{2} - 2y$	$\frac{P-2y}{2}$	$\frac{P+2y}{2}$	$\frac{P}{2} + 2y$	none of these
53. If $A = \frac{1}{2}h(B+b)$, then $h =$	$\frac{2A}{h} - B$	$\frac{2A-B}{h}$	$\frac{2A}{h} + B$	$\frac{2A+B}{h}$	none of these
54. If $QL + \pi Rr = 2A$, then $Q =$	$\frac{2A}{L} - \pi Rr$	$\frac{2\pi ARr}{L}$	$\frac{2A-\pi Rr}{L}$	$\frac{2A-L}{\pi Rr}$	none of these
55. If $P + 3 = 4(L+2P)$, then $P =$	$\frac{3-4L}{7}$	$3-\frac{4L}{7}$	$\frac{4L-3}{7}$	$\frac{3}{7}-4L$	none of these
Algebraic Fractions I: 56. $\left(\frac{pq}{z}\right)\left(\frac{3z}{xp}\right) =$	$\frac{pq+3z}{z+xp}$	$\frac{3p^2q}{z^2x}$	$\frac{3q}{x}$	$\frac{27q}{x}$	none of these
57. $\frac{5(a+4)}{3} \div \frac{10(a+4)}{6a^2}$	$\frac{1}{a^2}$	a^2	$\frac{5(a+4)^2}{18a^2}$	$\frac{a^2}{a+4}$	none of these
58. $\frac{2x}{5y} - \frac{3}{7z} =$	$\frac{2xz-3y}{yz}$	$\frac{2x-3}{5y-7z}$	$14xz-15y$	$\frac{14xz-15y}{35yz}$	none of these
59. $\frac{1}{a} + \frac{3}{ab} =$	$\frac{b+3}{ab}$	$\frac{4}{a+ab}$	$\frac{ab+3a}{ab}$	$\frac{b+3a}{ab}$	none of these
60. $\left(x+\frac{1}{y}\right) \div \left(1+\frac{x}{y}\right) =$	**1**	$\frac{xy+1}{y+x}$	$\frac{(y+x)^2}{y^2}$	$x+y$	none of these

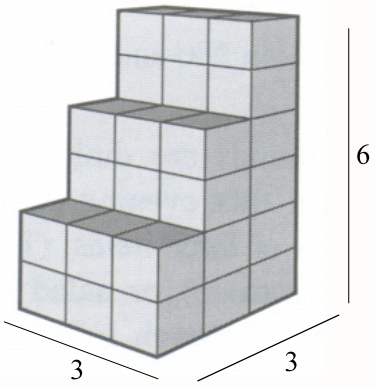


Figure 1

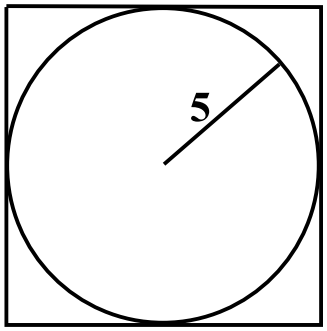


Figure 2

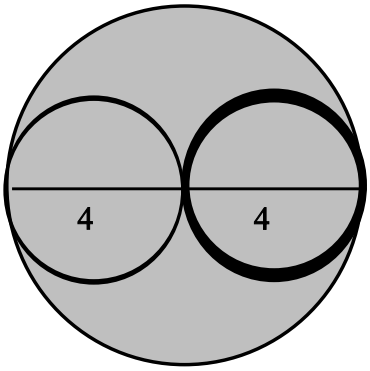


Figure 3

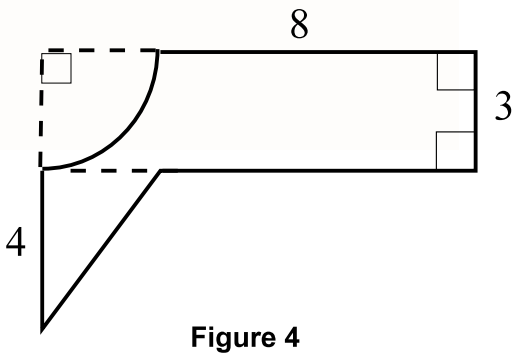


Figure 4

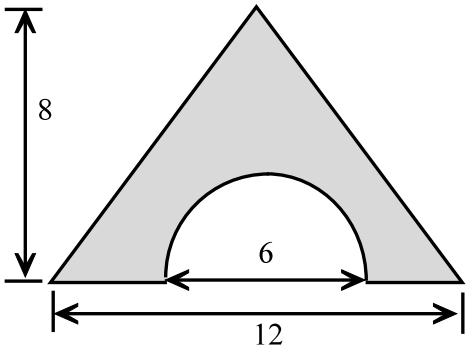


Figure 5

	1	2	3	4	5
Mensuration: From the diagrams above: 61. The volume of **Figure 1** is:	**36**	**100**	**72**	**18**	none of these
62. The area of the square in **Figure 2** is:	**25**	**100**	**75**	**50**	none of these
63. The shaded area of **Figure 3** is:	16π	12π	8π	**16**	none of these
64. The perimeter of **Figure 4** is:	$28+\frac{3\pi}{2}$	$15+\frac{3\pi}{2}$	$28+2\pi$	**28**	none of these
65. The shaded area of **Figure 5** is:	$48-\frac{9\pi}{2}$	**48**	$24+\frac{9\pi}{2}$	$48+\frac{9\pi}{2}$	none of these

	1	2	3	4	5
Quadratic Equations: 66. If $x^2 + 5x = 0$, then $x =$	**5**	**−5**	**0 or −5**	**0 or 5**	none of these

67. If $(x-7)(x+4)=0$, then $x=$	**7 or −4**	**7 or 4**	**−7 or −4**	**−7 or 4**	none of these
68. If $x^2-25=0$, then, $x=$	**−5**	**±5**	**5**	**±5*i***	none of these
69. If $3x^2+x=2$, then $x=$	$\frac{2}{3}$ or −1	$\frac{1}{3}$ or −2	$-\frac{1}{3}$ **or 2**	$-\frac{1}{3}$ **or −1**	none of these
70. If $x^2-6x+4=0$, then $x=$	$\frac{3\pm\sqrt{5}}{2}$	$3\pm\sqrt{5}$	**4, −1**	$\frac{6\pm\sqrt{5}}{2}$	none of these

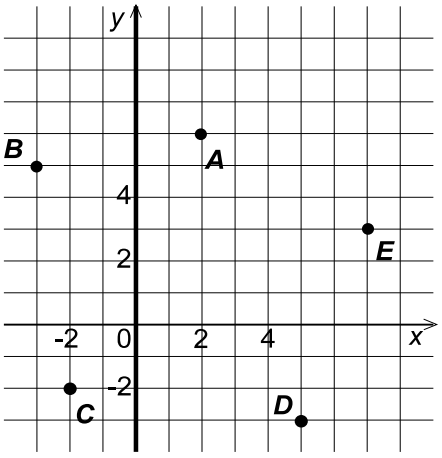


Figure 1

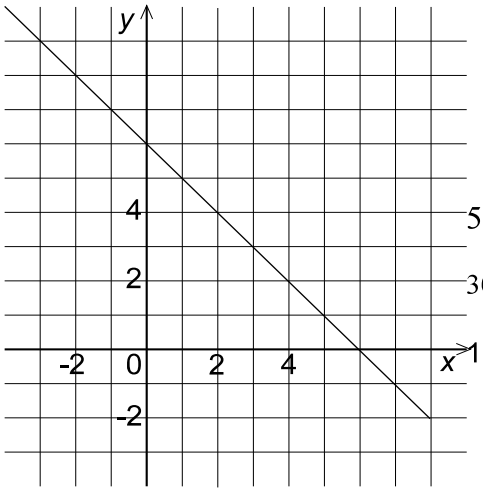
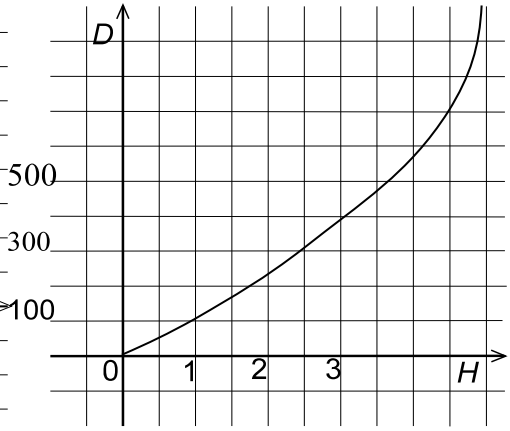


Figure 2



Graph of the relationship between the damage *D*, in millions of dollars and H, the hurricane force, for townships in Florida.

Figure 3

Graphing:

	1	2	3	4	5
71. In **Figure 1**, point **(7,3)** is indicated by letter	***C***	***E***	***A***	***D***	none of these
72. In **Figure 2**, the ***x*** intercept of the line is	**(5,0)**	**(−5,0)**	**(0,6)**	**(6,0)**	none of these
73. In **Figure 2**, the slope of the line is	**1**	**−1**	**6**	**−6**	none of these
74. The slope of the line $3y=5x-8$ is	**−5**	$\frac{3}{5}$	$-\frac{5}{3}$	$\frac{5}{3}$	none of these
75. In **Figure 3** what is the hurricane force when the damage is 400 million	**2**	**3**	**4**	**2.5**	none of these
	1	**2**	**3**	**4**	5

Algebraic Fractions II: 76. Reduce to lowest terms: $\frac{4a-4b}{4a+4b}$	**0**	**−1**	$\frac{a-b}{a+b}$	**4**	none of these
77. Reduce to lowest terms: $\frac{16x^2-9}{(4x-3)^2}=$	**1**	$\frac{4x+3}{4x-3}$	**0**	**−1**	none of these
78. Simplify: $\frac{4}{k}\div\left(\frac{1}{k}-\frac{1}{k^2}\right)=$	$\frac{k^3}{4(k-1)}$	$\frac{4(k-1)}{k^3}$	**−4**	$\frac{4k}{k-1}$	none of these
79. Find the lowest common denominator of the following fractions: $\frac{1}{x^2-3x+2},\frac{1}{4x^2-8x}$	$4x(x-1)(x-2)$	$x-2$	$4x(x-1)(x-2)^2$	$x(x-1)(x-2)$	none of these
80. If $\frac{1}{A}+\frac{1}{B}=\frac{1}{C}$, then $B=$	$\frac{AC}{A-C}$	$C-A$	$\frac{C-A}{AC}$	$C+A$	none of these
Radicals and Fractional Exponents: 81. $5\sqrt{x}=$	$5\frac{x}{2}$	$5x^2$	$5x^{\frac{1}{2}}$	$\frac{5}{x^2}$	none of these
82. $5(x-y)^{-\frac{1}{2}}=$	$\frac{1}{5\sqrt{x-y}}$	$\frac{5}{\sqrt{x-y}}$	$5\left(x^{1/2}-y^{1/2}\right)$	$5\sqrt{\frac{x}{y}}$	none of these
83. $\left(2x^{3/4}\right)\left(5x^{-2/3}\right)=$	$\sqrt[12]{10x}$	$\frac{10}{\sqrt[12]{x}}$	$\frac{\sqrt[4]{2x^3}}{\sqrt[3]{5x^2}}$	$10x^{1/12}$	none of these
84. $\sqrt[3]{5}.\sqrt[3]{6}=$	$\sqrt[3]{30}$	30^3	$\sqrt[6]{30}$	$11^{1/3}$	none of these
85. $\sqrt{36x^8y^6}=$	**$6xy$**	**$6x^4y^3$**	**$18x^4y^3$**	**$36x^4y^3$**	none of these
Logarithms: 86. $\log_8 8^3=$	**64**	**512**	**3**	**0**	none of these
87. **$\log(xy)=$**	**$\log x\cdot\log y$**	**$\log x+\log y$**	**$x\log x$**	**$y\log(x)$**	none of these
88. **$\log 10-\log 5$**	**$\log(10^5)$**	**$\log 15$**	**$\log 2$**	**$\log 50$**	none of these
89. If $\log_e y=az$, then $y=$	**$(az)^e$**	**e^{az}**	**e^{a+z}**	$\frac{az}{\log_e}$	none of these
90. If $F=\log\frac{x}{y}$, then $\log y=$	**$F+\log x$**	**$F\cdot\log x$**	**$\log x-F$**	$\frac{F}{x}$	none of these

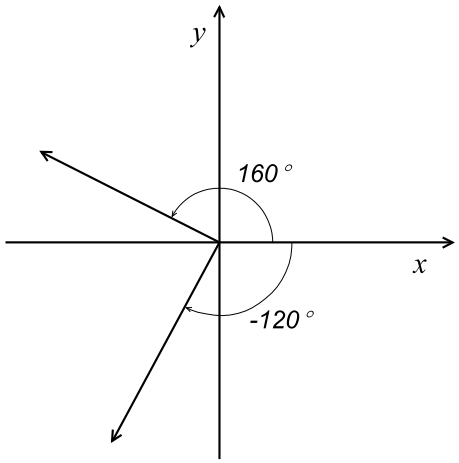


Figure 1

	1	2	3	4	5
Trigonometry : 91. Referring to **Figure 1**, **tan 160°** =	**−cot 20°**	**−tan 20°**	**tan 20°**	**tan 70°**	none of these
92. Referring to **Figure 1**, **sin (−120°)** =	**sin 120°**	**−sin 60°**	**sin 60°**	**cos 240°**	none of these
93. $\frac{\pi}{2}$ radians =	**90°**	**360°**	**180°**	**3.14°**	none of these
94. **150°** = (in radians)	$\frac{5\pi}{6}$	$\frac{3\pi}{4}$	$\frac{2\pi}{3}$	π	none of these
95. If **sin** x **= −1**, then x =	$\frac{3\pi}{2}$	π	**0**	**cos (−1)**	none of these
Word Problems: 96. The algebraic expression for: "**a number and 9 times its square**" is:	$(x+9x)^2$	$x+9x^2$	$9x^2$	$x+(9x)^2$	none of these
97. **Seven times a number minus 4 is 24**. Find the number.	**28**	$3\frac{3}{7}$	$\frac{20}{7}$	**4**	none of these
98. **Four times one third of a number plus 4 is equal to 8.** Find the number.	**6**	**3**	**10**	$\frac{8}{3}$	none of these
99. **A collection of nickels (5¢) and quarters (25¢) is worth $5.00. How many nickels and quarters are there in the collection if there ten more nickels than quarters**	**25,15**	**26,16**	**28,18**	**30,20**	none of these
100. **A man is now 8 times as old as his son. In eight years the man will be 4 times as old as his son. Find the present age of the man and his son.**	**48,6**	**32,4**	**40,5**	**54,9**	none of these