

**CMIS 160 – Discrete Mathematics for Computing  
Readiness Test – 3 August 2004**

Instructions to the Student: Answer these questions, giving yourself about 20 minutes to do so. Then check your answers against the key located [here](#).

If you were not able to answer substantially all of these (say, at least 10) correctly, you need to review your algebra before class starts or during the first few weeks. Some students have found the University of Akron's site at [http://www.math.uakron.edu/~dpstory/mpt\\_home.html](http://www.math.uakron.edu/~dpstory/mpt_home.html) helpful.

If you were only able to answer a few of these (say, 5 or less) correctly, you should consider dropping CMIS 160 at this time and enrolling in Math 107 instead.

Q1. What is the value of  $(-3)(-5) - (2)(-7)$ ?

Q2. What is the product of  $|4|$  times  $|-8|$ ?

Q3. What is the value of  $2\frac{3}{5} + 1\frac{5}{7}$  ?

Q4. What is the value of  $\sqrt{16}$  ?

Q5. Which of the following is equal to  $x^7 x^3$  ?

- a.  $x^{21}$
- b.  $x^{73}$
- c.  $x^{10}$
- d.  $x^4$

Q6. Which of the following is equal to  $(a^4)^3$  ?

- a.  $a^7$
- b.  $a$
- c.  $a^{12}$
- d.  $a^{43}$

Q7. Perform the indicated operation and simplify:  $(8x - 5y)(2x + 3y)$

Q8. Perform the indicated operation and simplify:  $\frac{x-y}{z} + \frac{x}{x+y}$

Q9. Solve the equation  $y = \frac{x}{x+2}$  for the variable  $x$ .

Q10. If  $x = -1$ , what is the value of the expression

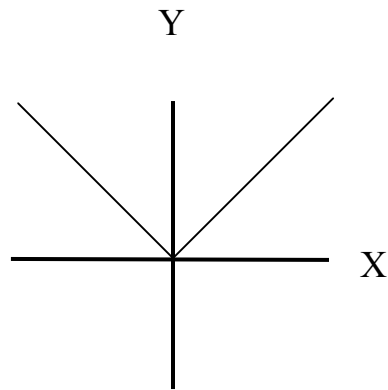
$$24x^4 - 16x^3 + 17x^2 + 10x - 20 \quad ?$$

Q11. If the function  $f$  is defined for all real numbers  $x$  by  $f(x) = \frac{x+1}{x^2+1}$ ,

compute the numerical value  $f(f(-1))$ .

Q12. What is the value of the expression  $\frac{2n+1}{n+1}$  if  $n$  is replaced by  $n+1$ ?  
Simplify your answer as much as possible.

Q13. Consider the following graph of a function of a real variable:



Of which of the following functions is this the graph?

- a.  $f(x) = x$
- b.  $g(x) = x^2$
- c.  $h(x) = |x|$
- d.  $k(x) = 1/x$

Q14. Which of the following has the same meaning as  $\log_2(a) = b$  ?

- a.  $2^a = b$
- b.  $2^b = a$
- c.  $a^2 = b$
- d.  $a^b = 2$