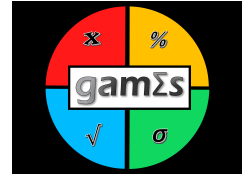


GAMES Course 1 Term Test



Multiple-Choice

- Of the following, which are examples of discrete variables? Click all those that are correct.
 - Number of children
 - Height of children
 - Number of trees in a forest
 - Fraction of the population which is vaccinated
- How does one begin a new formula in Excel?
 - Write the word “formula”
 - Write “D6 + E6 + F6”
 - CTRL V
 - Use the “=” sign
- How does one begin a new formula in Excel?
 - Write the word “formula”
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 - CTRL V
 - Use the “=” sign
- A warehouse stores 4 types of goods. It has x_1 units of good 1, which is priced at p_1 per unit, x_2 units of good 2, which is priced at p_2 per unit, x_3 units of good 3, which is priced at p_3 per unit and x_4 units of good 4, which is priced at p_4 per unit?
 - $\sum_{i=1}^4 x_i$
 - $\sum_{i=1}^4 p_i x_i$
 - $\sum_{i=1}^4 p_i$
 - $\sum_{i=1}^2 p_i x_i$
- Let a, b be real numbers. Simplify: $(a^2)(b^2)$
 - ab^2
 - $(ab)^2$
 - $(2)^{(a+b)}$
 - Can't be simplified further
- Expand: $\frac{a^3 b^{-2}}{d^2} \div \frac{d^2}{a^{-1} b^{-1}}$
 - $\frac{a^2 b^{-3}}{d^4}$

- (b) $\frac{a^2b^{-1}}{d^4}$
- (c) a^2b^{-3}
- (d) a^2b^{-1}
- (e) $\frac{a^4b^{-3}}{d^4}$

7. The expression: $\sqrt[3]{\frac{1}{27}}$ is equal to:

- (a) A number multiplied by itself $\frac{1}{27}$ times which is equal to 3.
- (b) A number divided by itself 3-times which is equal to $\frac{1}{27}$.
- (c) A number multiplied by itself 3 times which is equal to $\frac{1}{27}$.
- (d) A number raised to the power of -3 which is equal to $\frac{1}{27}$.

8. Expand: $(a + b)(c - d)$

- (a) $ac + ad - bc + bd$
- (b) $ab + ad - ac + bd$
- (c) $ab - ad + ac - bd$
- (d) $ac - ad + bc - bd$

9. What is the intersection of $(3, 7)$ and $[4.5, 8]$?

- (a) $[4.5, 8]$
- (b) $[4.5, 7]$
- (c) $(4.5, 8]$
- (d) $(4.5, 7]$

10. What is the union of $(5, 8)$ and $[5.5, 9]$?

- (a) $(5, 9]$
- (b) $[5, 9]$
- (c) $[5.5, 8]$
- (d) $(5.5, 8)$

Short Answer Questions

- In a course, the overall mark depends on one's mark in an assignment, a midterm exam and a final exam. The weight on the three are 25%, 25% and 50% respectively. Josh's score on the assignment was 80%, on the midterm was 60% and he has the final exam coming up.
 - If Josh's score on the final exam is $x\%$, what will be his overall score for the course?
 - Josh needs to get 80% or more overall to get an A- in the course. If he scores 85% in the final, will it be enough for Josh to get an A?
 - What is the minimum that Josh needs to score in the final to secure an A for the course?
- Consider a model of infection spread. Suppose each person interacts with N people each day. If a person is infected, the chance of him/her spreading it to a person that he/she meets is p . Thus on average, an infected person will spread the infection to pN persons.

Assume for simplicity that an infected person is contagious for only 1 day i.e. stops spreading it after 1 day.

 - If 1 infected person enters a population today without any previous infection, how many people are likely to be infected in 1 day, and in t days?
 - If 10 infected persons entered the population today which didn't have any previous infections, how many people are likely to be infected in 1 day, and in t days?
 - Starting from 10 infections, compute how many infections there are likely to be in 5 days if $p = 0.1$ and $N = 20$.
- An annuity is a stream of n cash flows paid at regular intervals. Consider an annuity that will pay \$1000 each year over the next 5 years (starting from next year). The present value of receiving \$1000 t years from now is given by $\frac{1000}{(1+r)^t}$, where r is the yearly interest rate.
 - How much is the present value of receiving \$1000 two years from now?
 - Write the total present value of this annuity as a sum of 5 terms, and also using the summation notation.
 - Determine the total present value of this annuity if the rate of interest per year is 5% i.e. $r = 0.05$.
- Pink Inc. produces smartphones using Beige Co. part which makeup $1/7$ of smart phone and Kato Co. parts which provide $5/9$ of the components. What fraction of components have not been provided?
- A construction firm prepaid \$49,275 to be used for acquiring building materials. Each day, the firm acquired materials worth \$135. If there was \$35,910 left in the pre-paid account, how many days have passed?
- As a supervisor at a clothing retailer, you observe that worker A can complete a task in 14 minutes. When worker A and worker B work on the task together, it takes 6 minutes to complete. How much time would it take for worker B to complete the task herself?
- Suppose wage, w , varies directly with the cube of an individual's human capital, h . Wage also varies inversely with time spent unemployed, u . Wage is also impacted by a constant multiplicative parameter, a . When an individual has $h = 3, u = 6$, wage is \$18 per hour. If an individual had human capital of 2 and a wage of \$24, how much time did she spend unemployed?

8. Decide whether the following tables have linear or non-linear data.

(a)

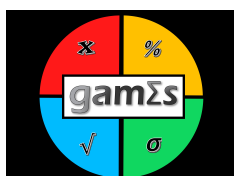
x	-1	0	1	2	3
y	4	1	-2	-5	-8

(b)

x	-4	-3	-2	-1	0
y	18	11	6	3	2

(c)

x	1	2	3	4	5
y	-3	-5	-7	-9	-11



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