

Name: _____
Student ID: _____

Test 1

This test is graded out of 55 marks. No books, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. (2 marks) Write the percent 0.3% into a fraction and into a decimal.

Question 2. (1 mark) Reduce the fraction $\frac{58}{76}$ to lowest terms.

Question 3. (1 mark) Bring the fraction $\frac{3.25}{5.75}$ to higher terms to eliminate the decimals.

Question 4. (3 marks) Simplify the following:

$$9 \left[\frac{(2(3^2) - 2(4 - 3))}{2^4 - 1} \right] + 3$$

Question 5. (3 marks) Simplify the following:

$$6(3 - yx)(x + y - 1) - (3 - a)(x + y)$$

Question 6. (2 marks) Expand the following:

$$(x - 1)(x + y + z - 1)$$

Question 7. (3 marks) Simplify the following:

$$\frac{x^3(xy^2)^3y^{-3}}{(x^{-1}y^2)^3}$$

Question 8. (2 mark) Evaluate the following to two decimal places:

$$\ln(e^8(1.3))$$

Question 9. (1 mark) Rewrite the exponential $9^2 = 81$ as a logarithm.

Question 10. (1 mark) Rewrite the logarithm $\ln 1 = 0$ as an exponential.

Question 11. (1 mark each)

Evaluate the following to two decimal places:

1. $\sqrt{152}$
2. $321^{\frac{2}{3}}$
3. $\frac{1-4^{-1}}{2}$
4. $\sqrt{19} - 7.4523$

Question 12. (4 marks)

Let $r = 0.045$, $S = 2150$, $P = 201$. Solve for t and evaluate t to two decimal places:

$$S = P \left[1 - \frac{rt}{365} \right]$$

Question 13. (2 marks)

Let $PMT = 244$, $i = 0.06$, $n = 36$, evaluate FV to two decimal places:

$$FV = PMT \left[\frac{(1+i)^n - 1}{i} \right]$$

Question 14. (3 marks)

Solve for x :

$$1 + 3(x + 2) + (x - 8) - (x - 1) = 4(4x - 2)$$

Question 15. (3 marks)

Solve for x:

$$\frac{2}{7}(3x - 2) - \frac{3}{5}(5x - 2) = \frac{7}{20} - x$$

Question 16. (2 marks)

Change the ratio 30 : 90 : 118 to lower terms.

Question 17. (2 marks)

Change the ratio 1.3 : 7.1 : 10.3 to higher terms to eliminate the decimals of each proportion.

Question 18. (4 marks)

John the farmer decides to sell part of his land to help his financial situation. He sells two lots one of $1\frac{1}{2}$ and the other of $2\frac{1}{6}$ hectares at a price of \$25 000 per hectare. He then sells an additional lot of $4\frac{1}{5}$ hectare at a price of \$15 000 per hectare. How much will John obtain from the sale of the lots?

Question 19. (4 marks)

Jean opens a savings account with zero interest at his favorite bank. He makes an initial deposit of \$4 000 on January 1st, he withdraws \$1 300 on April 1st, he deposits \$700 on August 1st, he deposits \$200 on October 1st. What was Jean average monthly balance of his savings account for the year?

Question 20. (4 marks)

Emilie and Yann are getting insured at their new apartment. The insurance cost \$564.00. They agree that the cost will be divided in a ratio of five to seven and that Emilie will pay more. How much money will Yann pay for the insurance?

Question 21. (4 marks)

If a business has a net income of \$2 120 000 that is split between its three investor in the ratio $\frac{1}{3} : \frac{1}{7} : \frac{1}{9}$, how much will each investor receive?

Bonus Question (2 marks)

Isolate n (i.e. solve for n).

$$FV = PMT \left[\frac{(1+i)^n - 1}{i} \right]$$