Name: _____

Student ID: _____

Test 1

This test is graded out of 50 marks. No books, notes, graphing calculators 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)* 5 is 20% of what number?

Question 2. *(1 mark each)* Simplify and write all answer without using exponents and decimals:

a.

$$(-2)^3$$

b.

$$\left(\frac{2}{-9}\right)^2$$

c.

$$\left(\frac{3}{-2}\right)^{-2}$$

d.

$$(xy^2)^0$$

Question 3. *(2 marks each)* Simplify and write all answers so that only positive exponents remain:

a.

$$\left(\frac{a}{a^{-4}}\right)^2$$

b.

$$\left(\frac{-x}{2}\right)^{-3}$$

Question 4. *(5 marks)* Simplify and write the solution so that only positive exponents remain:

$$\left(\frac{x^{-2}y^3z^1}{-x^3y^{-2}z^0}\right)^{-2}$$

Question 5. *(3 marks)* Simplify:

$$-[8 - 4(x+5) + x] - (x-1)$$

Question 6. *(2 marks)* Expand and simplify:

$$3x^2(x+1)(x-2)$$

Question 7. *(4 marks)* Expand and simplify:

$$(x+2)(x-3) - (x+3)^2 - 13$$

Question 8. *(4 marks)* Divide using long division:

$$(x^3 + 2x^2 - 2) \div (x+1)$$

Question 9. *(2 marks)* Factor completely:

$$12x^2 + 11x + 2$$

Question 10. *(4 marks)* Simplify completely:

$$\frac{x^2 - 11}{x^2 + 7x + 6} - \frac{x}{x+6} + \frac{2}{x+1}$$

Question 11. *(6 marks)* Simplify completely:

$$\frac{x^2 + 5x}{x^2 - 25} \times \frac{x^2 - x - 20}{3x + 12} \div \frac{x^2 + 3x}{3x^2 - 27}$$

Question 12. *(2 marks)* Solve for x:

$$5(x-6) = -2(15-2x)$$

Question 13. *(3 marks)* Solve for x:

$$\frac{4x+1}{2} - \frac{2x+3}{3} = \frac{5x-1}{4}$$

Question 14. *(5 marks)* Solve for x:

$$\frac{7}{x^2-x-6} - \frac{2}{x-3} = \frac{1}{x+2}$$