

NAME: _____

STUDENT NUMBER: _____

TEST 1

Dawson College
Applied Math (201-943-DW)
Date: SEPTEMBER 28th 2012
Instructor: Emilie Richer

This test is marked out of 60 marks

Question 1. (10 marks)

Simplify the given expressions. Express the results with positive exponents only.

(a) $\pi \left(\frac{r}{3}\right)^3 \left(\frac{4}{3\pi r^2}\right)$

(b) $\frac{(3^2t)^{-1}}{3t^{-1}}$

(c) $\left(\frac{4a^{\frac{5}{6}}b^{-\frac{1}{5}}}{a^{\frac{2}{3}}b^2}\right)^{-\frac{1}{2}}$

(d) $\left(\frac{3^{-1}a^{\frac{1}{2}}}{4^{-\frac{1}{2}}b}\right) \div \left(\frac{9^{\frac{1}{2}}a^{-\frac{1}{3}}}{2b^{-\frac{1}{4}}}\right)$

Question 2. (6 marks)

Simplify the given algebraic expressions.

(a) $-(3t - (7 + 2t - (5t - 6)))$

(b) $5V^2 - (6 - (2V^2 + 3))$

Question 3. (6 marks)

Perform the indicated multiplications.

(a) $-4c^2(-9gc - 2c + g^2)$

(b) $ax(x + 4)(7 - x^2)$

Question 4. (6 marks)

Perform the indicated divisions.

(a) $\frac{9(aB)^4 - 6aB^4}{3aB^3}$

(b) $\frac{2x^{n+2} + 4ax^n}{2x^n}$

Question 5. (9 marks)

Solve the given equations

(a) $3 - 6(2 - 3t) = t - 5$

(b) $\frac{4x - 2(x - 4)}{3} = 8$

(c) $\frac{42}{R} = \frac{7}{3}$

Question 6. (6 marks)

Solve the given quadratic equations **by factoring**.

(a) $10b^2 + 23b = 5$

(b) $x^2 + x - 56 = 0$

Question 7. (6 marks)

Solve the given quadratic equations by any appropriate algebraic method.

(a) $3x^2 + 8x + 2 = 0$

(b) $4v^2 = v + 5$

Question 8. (6 marks)

A car's radiator contains 12L of antifreeze at a 25% concentration. How many litres must be drained and then replaced by pure antifreeze to bring the concentration to 50% (the manufacturer's "safe" level).

Question 9. Simplify the given expressions. (5 marks)

(a) $\sqrt[3]{-27}$

(b) $16^{-0.5}$

(c) $-16^{\frac{3}{2}}$

(d) $\sqrt[4]{81}$

(e) $\sqrt[3]{-64}$