

SHARP

Worksheet 12: Revision Term 1

Grade 11 Mathematics

1. Simplify the following expressions, leave answers with positive exponents:

a) $\frac{x^2}{y^2} \div \frac{(xy)^0}{(xy^3)^2}$

b) $\frac{\sqrt{4x^6y^2}}{x^3y^{-4}} \times \frac{x^2y^3}{(x^2y^{-3})^{-1}}$

c) $\left(\frac{x}{y} - \frac{1}{x}\right)^{-1}$

d) $\sqrt{4\sqrt{8\sqrt{4x^8}}}$

e) $\left(\frac{x}{y^3}\right)^3 \left(\frac{x^2}{y}\right)^{-2} \left(\frac{xy^3}{x^0y}\right)^4$

2. Simplify the following expressions without using a calculator, leave answers in surd form where necessary:

a) $\frac{\sqrt{48} + \sqrt{75}}{\sqrt{27}}$

b) $\frac{\sqrt{72} - \sqrt{50}}{\sqrt{6}}$

c) $\frac{\sqrt{63} + \sqrt{28}}{\sqrt{150}} \times \frac{\sqrt{384} - \sqrt{294}}{\sqrt{112}}$

d) $\sqrt[3]{\sqrt{3600x^{12}} + \sqrt{16x^{12}}}$

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

3. Solve the following equations for x to two decimal places where necessary:

a) $3x(x - 2) \leq 4(4x - 6)$

b) $7x^2 - 5x - 3 = 0$

c) $2x^2 - 5x - 7 = 0$

(by completing the square)

d) $4x(x + 1) \geq 2 - 3x$

e) $10x^2 + 28x = 6$

f) $3^{x+3} - 3^{x-1} = 240$

g) $5x^2 - 42x + 12 = 0$

h) $-3x^2 + 4x + 12 = 0$ (by completing the square)

i) $2x(x + 2) = 3(10 - x)$

j) $5.2^{x+4} + 5.2^{x-2} = 5\frac{5}{64}$

k) $x^2 - 3x > 3(3 - x)$

l) $3x^2 + 2 = 5x$

m) $-10x + 2x^2 - 3 = 0$ (by completing the square)

n) $8(x + 1)^2 < -6x - 7$

o) $5^{6x+1} - 5^{6x-1} = 24$

p) $x^2 - 15x + 17 = 0$

q) $15x^2 - 13x - 6 = 0$

r) $-2x^2 + 6x - 4 = 0$

(by completing the square)

s) $4.3^{x+1} + 2.3^{x-1} = 4\frac{2}{9}$

t) $9x(x + 3) \leq 2(3x - 5)$



