

### **S5/6 National 5 Maths Homework 14**

1. Solve

a)  $4(x + 3) - 2 = 2$

b)  $3(8a + 2) - 4a = 36$

c)  $3(3d + 5) + 2(3d - 7) = 19$

d)  $\frac{2p}{7} - 6 = 9$

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2. Solve these quadratic equations.

a)  $m^2 + 4m - 12 = 0$

b)  $2x^2 + x - 6 = 0$

c)  $9a^2 - 4 = 0$

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3. a) Simplify  $\frac{a^{\frac{1}{2}} \times 6a^{\frac{5}{2}}}{12a}$

b) Evaluate  $27^{\frac{-2}{3}}$

c)  $\frac{4}{m-1} - \frac{16}{4m+1}$

d) Simplify  $\sqrt{2(2\sqrt{2} - \sqrt{6})}$

e)  $f(x) = \frac{3\sqrt{2}}{\sqrt{x}}$  Express  $f(6)$  with a rational denominator.

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4. Solve, leaving your answer correct to 1 dp.

a)  $x^2 + 6x - 5 = 0$

b)  $2x^2 + 3x - 1 = 0$



5. Sketch the graph of the function  $f(x) = x^2 - 5x - 7$

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6. Reduce to its simplest form.

a)  $\frac{8y}{4}$

b)  $\frac{2a}{4}$

c)  $\frac{c^2d}{d^2}$

d)  $\frac{(g-1)^3}{(g-1)}$

e)  $\frac{(p+4)^5}{(p+4)^6}$

f)  $\frac{(m+1)(m-2)}{(m-2)}$

g)  $\frac{(x-4)(x-5)}{(x-4)^2}$

h)  $\frac{(h-8)^3(h+2)^5}{(h-8)(h+2)^9}$

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7. Express  $P = \sqrt{u + at}$  in terms of  $t$ .

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8. A small tin of soup has a diameter of 6.2 cm and a height of 8.7 cm. It holds one helping.

A large tin has a diameter of 9.8 cm and a height of 11.5 cm.

How many helpings are in the large tin?



9. Calculate the equation of the line joining A(-2,3) and B(6,4)

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