

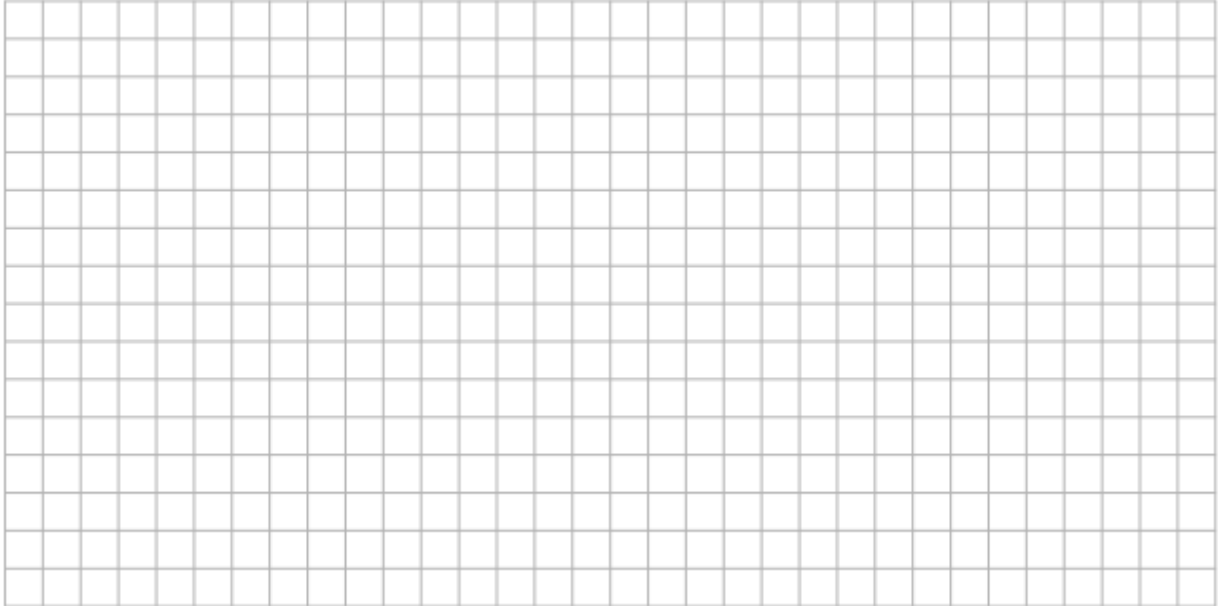
Manipulating Formula & Algebraic Identities

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Question 1

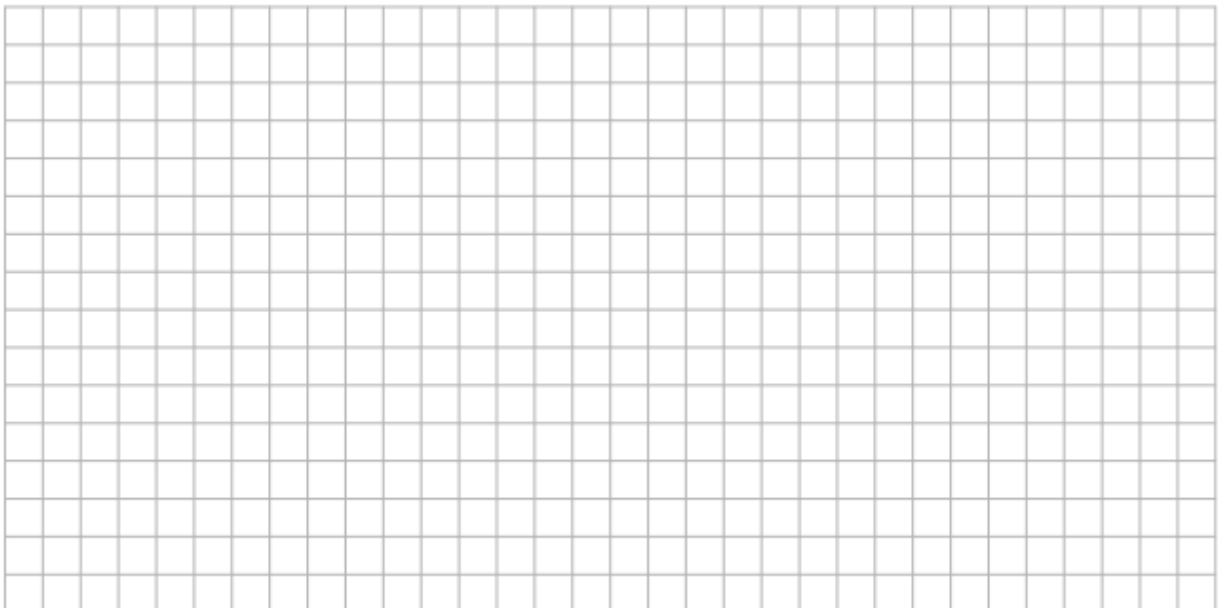
If $r = \frac{q^2 - pr}{q + p}$ express p in terms of q and r



Question 2

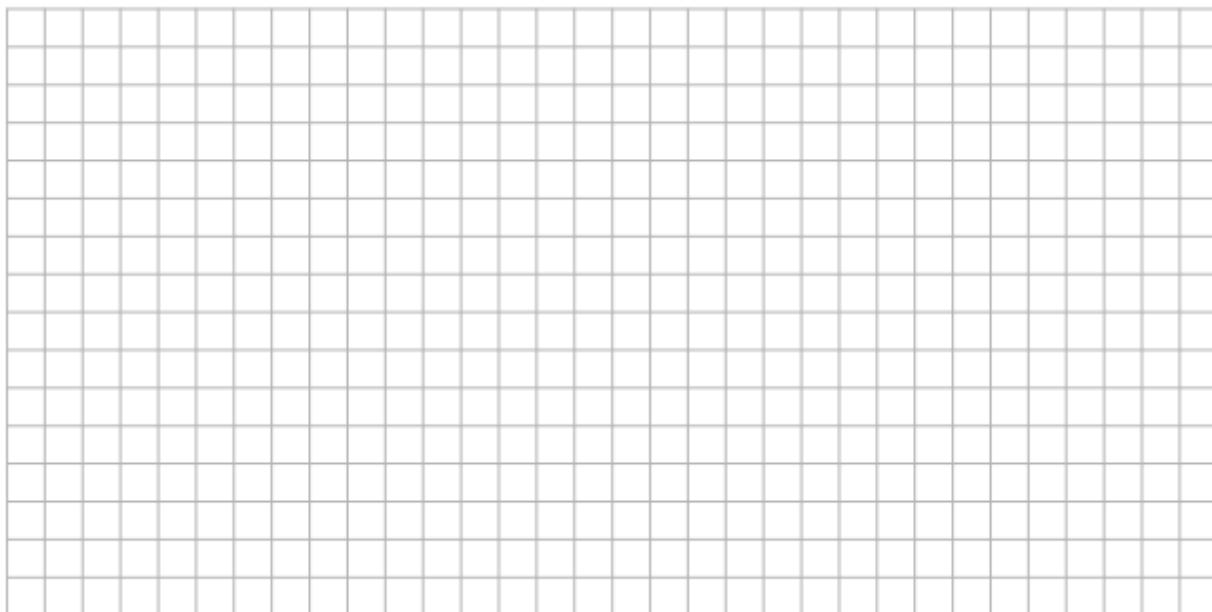
If $y = ax - 2a^2$ and $x = 2 + 3a$

- i. Express y in terms of a
- ii. Evaluate y when a = -2



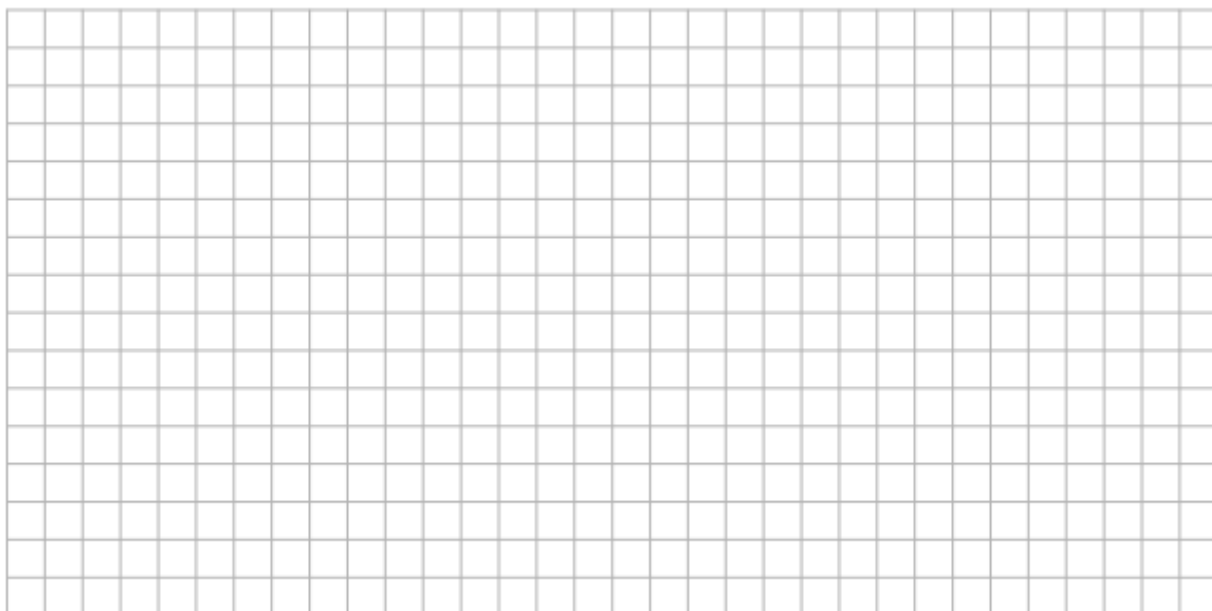
Question 3

If $q^2x = p + 2q^2$ express x in terms of p and q



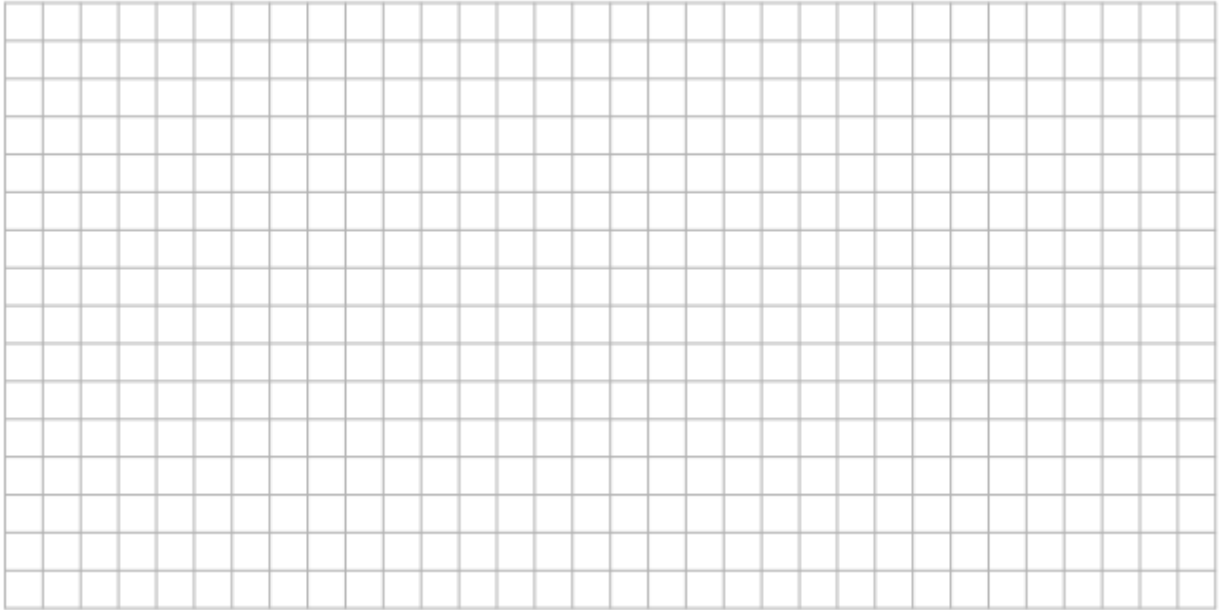
Question 4

If $y = q(x - 4)$ show that $y = \frac{p - 2q^2}{q}$



Question 5

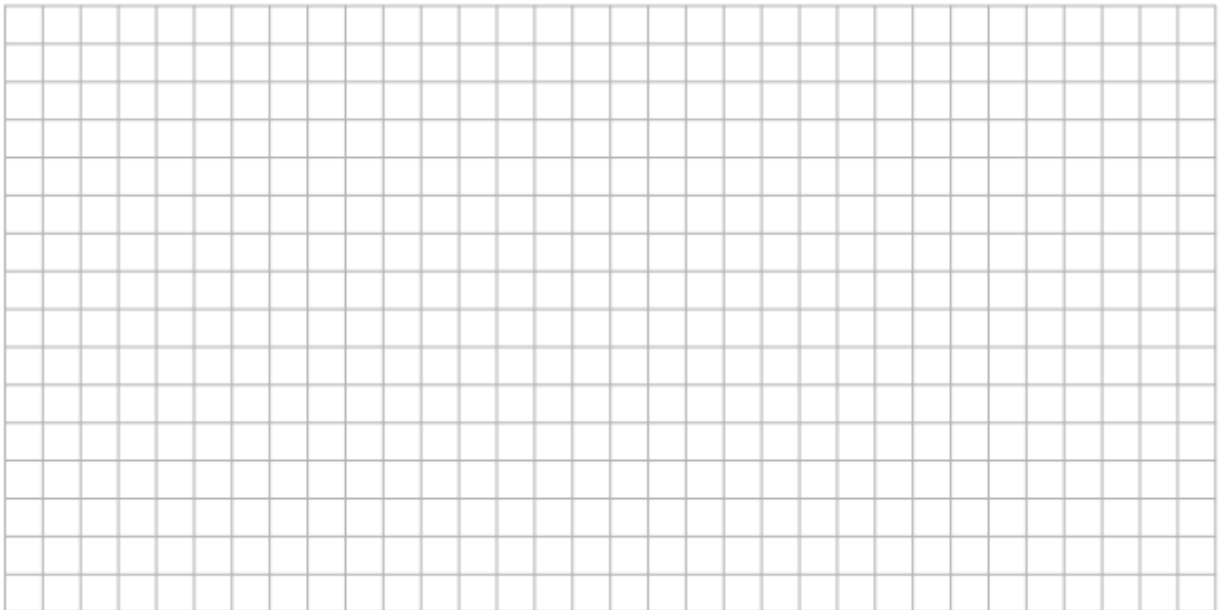
If $\sqrt{\frac{y+1}{y-1}} = x$, express y in terms of x



Question 6

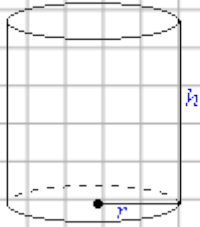
i. If $px - b = a - qx$, express x in terms of a, b, p, q .

ii. Hence, if $\sqrt{2p} = 4a$ and $q = -8b^2$, show that $8x = \frac{1}{a-b}$



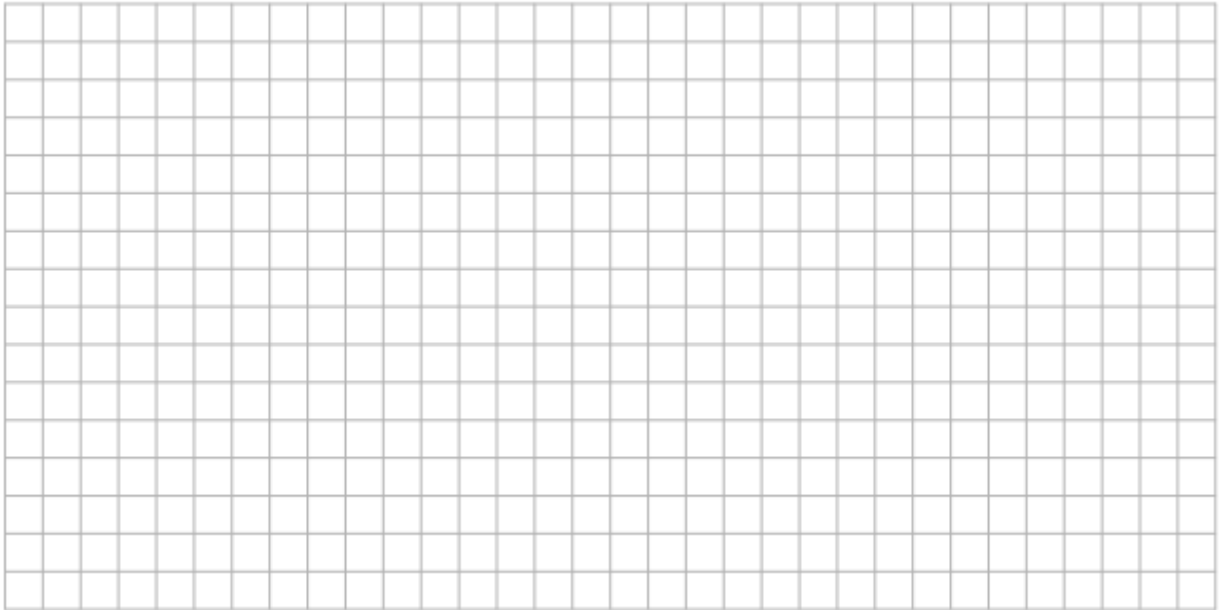
Question 7

- i. Write down the formula for the circumference of a circle.
- ii. A solid cylinder has a height h and a radius r . Write down the formula for the volume of the cylinder.
- iii. Given that the height of the cylinder added to the circumference of its base is equal to 3m , express the volume of the cylinder in terms of r and π .



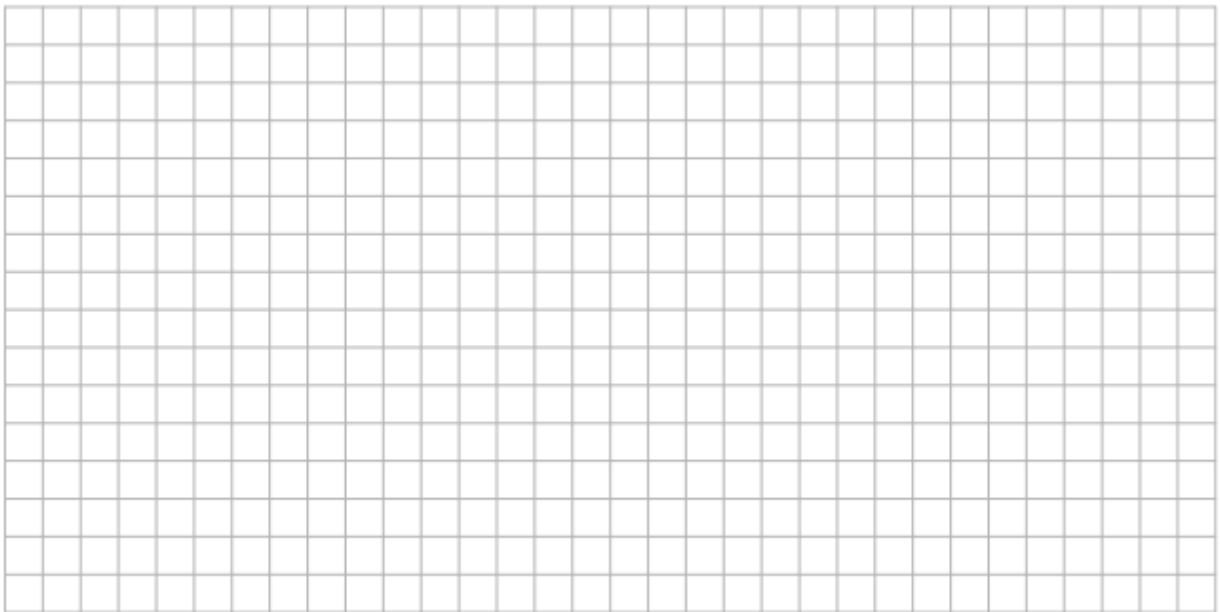
Question 8

$(x + a)(2x^2 + bx + 1) = 2x^3 + x^2 - 14x + 3$, for all values of x . Find the value of a and b



Question 9

$$ax^2 + 2abx + ab^2 + c = 3(x - 2)^2 + 5$$



Question 10

The dimensions of a solid cuboid are given as: $(x-2)$, $(x+2)$ and $(3x-1)$

- i. The volume, V , is given by $V(x) = px^3 + qx^2 + rx + s$, find the value of p, q, r and s .
- ii. The total surface area is given by $A(x) = ax^2 + bx + c$, find the value of a, b and c .

