



Harder Rearranging a Formula Exam Practice

Q1. Make a the subject of the formula, $a(b + 1) = d$

Answer: _____
(1 mark)

Q2. Make b the subject of the formula, $\frac{a}{b-1} = d$

Answer: _____
(2 marks)

Q3. Make q the subject of the formula, $p + \sqrt{q + 2} = r$

Answer: _____
(2 marks)



Q4. Make u the subject of the formula, $\frac{1}{\sqrt[3]{u-2}} = 8v + 3$

Answer: _____
(3 marks)

Q5. Make a the subject of the formula, $s = vt - \frac{1}{2}at^2$

Answer: _____
(2 marks)

Q6. Make d the subject of the formula, $\frac{1}{c} + \frac{1}{d} = \frac{1}{e}$

Answer: _____
(4 marks)



Multiple copies of the subject letter

Q7. Make x the subject of the formula, $3(x + a) = x + b$

Answer: _____
(2 marks)

Q8. Make p the subject of the formula, $a(2p - q) = p + 1$

Answer: _____
(3 marks)

Q9. Make r the subject of the formula, $\frac{2r+s}{3r} = 4$

Answer: _____
(3 marks)



Q10. Make c the subject of the formula, $\frac{2c+1}{3c-5} = 4$

Answer: _____
(3 marks)

Q11. Make m the subject of the formula, $\frac{2(3m-3)}{3m-5} = 4$

Answer: _____
(4 marks)

Q12. Make m the subject of the formula, $e = mgh + \frac{1}{2}mv^2$

Answer: _____
(3 marks)



Q13. Here is a formula: $\frac{3x-2}{5} - \frac{3y-2}{5y} = 0$

(a) make x the subject

Answer: _____
(2 marks)

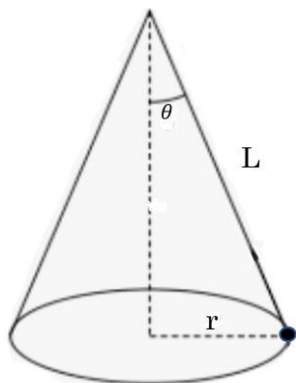
(b) make y the subject

Answer: _____
(3 marks)



Applied Mixed Practice Problems

Q14. A marble is attached to the end of a string of length L cm which is held at angle θ to the vertical. On being given a horizontal force, the marble follows the path of a circle as shown below.



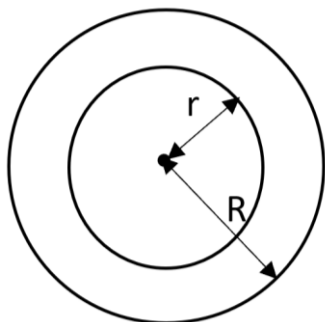
The number of seconds t to complete a circle, is given by:

$$t = 2\pi \sqrt{\frac{L \cos(\theta)}{g}}$$

If the marble takes 4 seconds to complete a circuit, the length of the string is 30 cm, $g = 9.8$, work out the angle between the string and the vertical. Give your answer to 1 decimal place.

Answer: _____
(3 marks)

Q17. Below is an annulus.



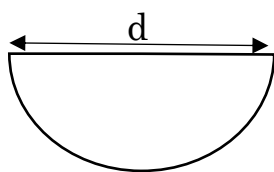
a) Find a formula for the area A of the annulus in terms of r and R .

b) Find a formula for r in terms of A and R

(Total: 6 marks)



Q15. Here is a semi-circle, with diameter d :



- a) Find a formula for the circumference c of the shape in terms of r where r is the radius of the semi-circle.

Answer: _____
(2 marks)

- b) Hence or otherwise, find a formula for r in terms of the circumference c

Answer: _____
(2 marks)



Q16. Amit works in a bank. He uses the formula $F = P\alpha(1 + r)^n$ where F is the future value of an investment, P is its present value, r is the annual interest rate and α is a number between 0 and 1 which reflects the current confidence the bank has in its forecasts.

a) Find a formula for the interest rate.

Answer: _____
(3 marks)

b)

(i) Amit has set the confidence coefficient to 0.3.

If a customer's investment is worth £24,000 now and is to be worth £25,30 find the interest rate the bank will have to apply.

Answer: _____
(2 marks)

(ii) Suppose that Amit sets the confidence coefficient to 0.43. State whether r will have to increase or decrease compared to the previous value of α .

Answer: _____
(1 mark)