

INTENSIVE REVISION QUESTIONS (ERQ)

SET 9 -DIFFERENTIATION

Name :

Form :

Teacher:

1. Determine the first derivative of $y = 4$. [2 marks]
2. A rectangle is formed by using a piece of wire such that its area is 51.84 cm^2 . Find the minimum length of the wire required. [4 marks]
3. Find the gradient of the tangent at $x = -2$ on the curve $y = \frac{2x - 8}{-2x - 7}$. [3 marks]
4. Given that $f(x) = (4x^2 - 2)^3$, find $f'(x)$. [3 marks]
5. Find $\frac{dy}{dx}$ for $y = \frac{12 + 5x}{x^2 - 6}$. [3 marks]
6. Determine the first derivative of $y = -6x^5$. [2 marks]
7. (a) Find the gradient of the tangent at the point $(-1, 2)$ on the curve $y = -6x^3 + 5x + 2$.
(b) Hence, find the equation of the tangent to the curve at that point. [4 marks]
8. Differentiate the expression $(4x^5 - 3)(4x^3 - 2)$ with respect to x . [3 marks]
9. Find $\frac{dy}{dx}$ for $y = \frac{7 + 6x}{x^2 - 4}$. [3 marks]
10. Given $y = -4x - 5 + 4x^2$. Find the change in y when x increase from 5 to $5 + n$, where n is a constant. Leave your answer in terms of n . [4 marks]
11. Find the coordinates of the turning points on the curve $y = 16x + \frac{36}{x}$. [3 marks]
12. Given $y = -3x - 1 + 6x^2$. Find the change in y when x increase from 5 to $5 + n$, where n is a constant. Leave your answer in terms of n . [4 marks]
13. Determine the first derivative of $y = -10x^7 - 2x^3 - 2x$. [2 marks]
14. Determine the first derivative of $y = 5x^7 + 3x^3 - 6x$. [2 marks]
15. Given that $f(x) = (8x^4 + 1)^5$, find $f'(x)$. [3 marks]
16. A rectangle is formed by using a piece of wire such that its area is 7.84 cm^2 .

PN RAHMAH SMKTD

- Find the minimum length of the wire required. [4 marks]
17. Given $y = 5x - 9 + 3x^2$. Find the change in y when x increase from 2 to $2 + n$, where n is a constant. Leave your answer in terms of n . [4 marks]
18. A rectangle is formed by using a piece of wire such that its area is 2.56 cm^2 . Find the minimum length of the wire required. [4 marks]
19. Given $y = -5x + 3 + 6x^3$. Find the change in y when x increase from 2 to $2 + n$, where n is a constant. Leave your answer in terms of n . [4 marks]
20. Find $\frac{dy}{dx}$ for $y = \frac{5 + 4x}{x^2 - 2}$. [3 marks]

Answers:

1. 0
2. 28.8 cm
3. $\frac{-10}{3}$
4. $24x(4x^2 - 2)^2$
5. $\frac{-5x^2 - 24x - 30}{(x^2 - 6)^2}$
6. $-30x^4$
7. (a) -13
(b) $y = -13x - 11$
8. $128x^7 - 40x^4 - 36x^2$
9. $\frac{-6x^2 - 14x - 24}{(x^2 - 4)^2}$
10. $36n$
11. $(\frac{3}{2}, 48), (\frac{-3}{2}, -48)$
12. $57n$
13. $-70x^6 - 6x^2 - 2$
14. $35x^6 + 9x^2 - 6$
15. $160x^3(8x^4 + 1)^4$
16. 11.2 cm
17. $17n$
18. 6.4 cm
19. $67n$
- 20.

PN RAHMAH SMKTD

$$\frac{-4x^2 - 10x - 8}{(x^2 - 2)^2}$$

PN RAHMAH SMKTD