

Solution

MATHEMATICS

MHT - CET - Mathematics

1.

(b) $\frac{n\pi}{8}$

Explanation:

$\frac{n\pi}{8}$

2.

(b) isosceles

Explanation:

isosceles

3. (a) $x^2 + y^2 - 2x + 2y - 23 = 0$

Explanation:

$x^2 + y^2 - 2x + 2y - 23 = 0$

4. (a) $x^2 + y^2 - 18x - 16y + 120 = 0$

Explanation:

$x^2 + y^2 - 18x - 16y + 120 = 0$

5.

(d) $0.23 \leq P(B \cap C) \leq 0.48$

Explanation:

$0.23 \leq P(B \cap C) \leq 0.48$

6.

(c) $(79)^2 3\sqrt{7}$

Explanation:

$(79)^2 3\sqrt{7}$

7.

(b) 8000

Explanation:

8000

8.

(b) 120

Explanation:

120

9.

(c) Is given by $\frac{x+5}{3}$

Explanation:

Is given by $\frac{x+5}{3}$

10.

(d) 1

Explanation:

1

11.

(c) $f(x)$ is continuous at $x = 0$

Explanation:

$f(x)$ is continuous at $x = 0$

12.

(d) 72 is not divisible by 2 or 72 is not divisible by 3.

Explanation:

72 is not divisible by 2 or 72 is not divisible by 3.

13.

(c) 1

Explanation:

1

14.

(d) 144

Explanation:

144

15.

(d) $\sin(\cos^{-1} x) = \cos(\sin^{-1} x)$

Explanation:

$\sin(\cos^{-1} x) = \cos(\sin^{-1} x)$

16.

(a) $\sqrt{3}$

Explanation:

$\sqrt{3}$

17.

(b) $b^2 = a^2 + c^2 - ac$

Explanation:

$b^2 = a^2 + c^2 - ac$

18.

(c) xyz

Explanation:

xyz

19.

(a) $e - 2$

Explanation:

$e - 2$

20.

(b) $\frac{1}{3}$

Explanation:

$\frac{1}{3}$

21. (b) $2 + \log_e \left(\frac{15}{7} \right)$

Explanation:

$$2 + \log_e \left(\frac{15}{7} \right)$$

22.

(c) $\frac{\alpha}{6}$

Explanation:

$$\frac{\alpha}{6}$$

23.

(b) $\frac{-\hat{i} + \hat{j} - \hat{k}}{\sqrt{3}}$

Explanation:

$$\frac{-\hat{i} + \hat{j} - \hat{k}}{\sqrt{3}}$$

24.

(c) Collinear

Explanation:

Collinear

25.

(d) $a = \frac{5}{2}, b = -1, c = \frac{1}{3}$

Explanation:

$$a = \frac{5}{2}, b = -1, c = \frac{1}{3}$$

26. (a) -7

Explanation:

-7

27. (a) 9ab

Explanation:

9ab

28.

(b) 3

Explanation:

3

29.

(d) 1

Explanation:

1

30.

(b) 600

Explanation:

600

31.

(d) $-\frac{2e^{2x}}{1+e^{4x}}$

Explanation:

$$-\frac{2e^{2x}}{1+e^{4x}}$$

32.

(c) $\frac{-x}{y}$

Explanation:

$$\frac{-x}{y}$$

33.

(c) 0

Explanation:

$$0$$

34.

(c) $\frac{x^2}{y^2} \sqrt{\frac{1-y^6}{1-x^6}}$

Explanation:

$$\frac{x^2}{y^2} \sqrt{\frac{1-y^6}{1-x^6}}$$

35.

(c) (2, 16), (-2, -16)

Explanation:

$$(2, 16), (-2, -16)$$

36.

(a) 13

Explanation:

$$13$$

37.

(c) s

Explanation:

$$s$$

38.

(b) $a = -\frac{\pi}{4}$, b = arbitrary constant

Explanation:

$$a = -\frac{\pi}{4}, b = \text{arbitrary constant}$$

39.

(b) $\frac{1}{\sqrt{2}} \tan^{-1} \left(\frac{\tan x - 1}{\sqrt{2} \tan x} \right) + \frac{1}{2\sqrt{2}} \log \left| \frac{\tan x - \sqrt{2} \tan x + 1}{\tan x + \sqrt{2} \tan x + 1} \right| + c$

Explanation:

$$\frac{1}{\sqrt{2}} \tan^{-1} \left(\frac{\tan x - 1}{\sqrt{2} \tan x} \right) + \frac{1}{2\sqrt{2}} \log \left| \frac{\tan x - \sqrt{2} \tan x + 1}{\tan x + \sqrt{2} \tan x + 1} \right| + c$$

40.

(b) $2\sqrt{\tan x} + c$

Explanation:

$$2\sqrt{\tan x} + c$$

41.

(b) $\frac{4}{3} \left(\frac{x-1}{x+2} \right)^{\frac{1}{4}} + c$

Explanation:

$$\frac{4}{3} \left(\frac{x-1}{x+2} \right)^{\frac{1}{4}} + c$$

42.

(d) 4

Explanation:

4

43.

(c) $x^2 + y^2 - 6x - 7 = 0$

Explanation:

$$x^2 + y^2 - 6x - 7 = 0$$

44.

(b) $\left[1 + \left(\frac{dy}{dx} \right)^3 \right]^{\frac{2}{3}} = 4 \frac{d^3y}{dx^3}$

Explanation:

$$\left[1 + \left(\frac{dy}{dx} \right)^3 \right]^{\frac{2}{3}} = 4 \frac{d^3y}{dx^3}$$

45. (a) $y = 2\sin^2x + \cos x - 2$

Explanation:

$$y = 2\sin^2x + \cos x - 2$$

46.

(b) 0.1

Explanation:

0.1

47. (a) $\frac{40}{49}$

Explanation:

$$\frac{40}{49}$$

48.

(d) 8

Explanation:

8

49.

(b) 2, 1

Explanation:

2, 1

50.

(b) $\frac{4}{3}$

Explanation:

$$\frac{4}{3}$$