MATHS

BOOKS - JEEVITH PUBLICATIONS MATHS (KANNADA ENGLISH)

RELATIONS AND FUNCTIONS

One Mark Questions With Answers

1. Find x and y if (x+7,5) = (6,3x+y)

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2. If G={7,8} and H={5,4,2}, find $G \times H$ and $H \times G$

.

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3. If $A = \{x / x \in N \text{ and } x < 4\}$

$B = \left\{x / x^2 - 9 = 0 \text{ and } x < 0\right\}$, find $A \times B$

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4. If

$A \times B = \{(1, x)(2, x), (3, x), (1, y), (2, y), (3, y)\}$

. Find $B \times A$.

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5. Find the domain and range of the relation R defined by

$R = \{(x + 1, x + 5) : x = 0, 1, 2, 3, 4, 5\}$

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6. If R is the relation "is greater than" from A={2,3,4,5,6} to B={2,5,6}, write the elements of R.

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7. If A={a,b,c}, B={m,n} find the number of relations from A to B.

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8. Let A={x,y,z} and B={1,2}. Find the number of relations from A to B.

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9. Determine the domain and range of the relation R defined by

R={(x,x+5) : x in {0,1,2,3,4,5}}

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10. Let A={1,2,3,4,6}. Let R be the relation on A defined by $\{\{a, b): a, b \in A$, b is exactly divisible by a}.

(i) Write R in roster form, (ii) Find the domain of R, (iii) Find the range of R.

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11. If G={7,8} and H={5,4,2}, find $G \times H$ and $H \times G$.

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12. If A={-1,1}, find $A \times A \times A$.

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13. Find x and y if (x+7,5) = (6,3x+y)

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14. If A={1,2}, B={3,4} find $A \times B$

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15. If $A = \{x / x \in N \text{ and } x < 4\}$

$B = \{x / x^2 - 9 = 0 \text{ and } x < 0\}$, find $A \times B$

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16. If

$A \times B = \{(1, x)(2, x), (3, x), (1, y), (2, y), (3, y)\}$

. Find $B \times A$.

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17. Find the domain and range of the relation R defined by

$R = \{(x + 1, x + 5) : x = 0, 1, 2, 3, 4, 5\}$

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18. If R is the relation "is greater than" from A={2,3,4,5,6} to B={2,5,6}, write the elements of R.

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19. If A={a,b,c}, B={m,n} find the number of relations from A to B.

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20. Let A={x,y,z} and B={1,2}. Find the number of relations from A to B.

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21. Determine the domain and range of the relation R defined by

R={(x,x+5) : x in {0,1,2,3,4,5}}

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22. Let A={1,2,3,4,6}. Let R be the relation on A defined by $\{\{a, b): a, b \in A$, b is exactly divisible by a}.

(i) Write R in roster form, (ii) Find the domain of R, (iii) Find the range of R.

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23. If G={7,8} and H={5,4,2}, find $G \times H$ and $H \times G$.

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24. If A={-1,1}, find $A \times A \times A$.

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Two Marks Questions With Answers

1. Find the domain of the functions $f(x) = \dfrac{3x}{x^2 + 3x + 2}$

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2. Find the range of the functions $f(x) = \sqrt{x - 3}.$

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3. Find the domain and the range of the real function f defined by $f(x) = \sqrt{(x-1)}$.

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4. Find the domain of the function $f(x) = \frac{x^2 + 2x + 1}{x^2 - 8x + 12}$

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5. Find the domain and range of the following real functions:

(i) $f(x) = -|x|$, (ii) $f(x) = \sqrt{9 - x^2}$

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6. If $f(x) = x^2 + 1, g(x) = x^2 - 5x + 6$, find $f + g, f - g, \frac{f}{g}$.

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7. Let fg: $R \to R$ be defined respectively by $f(x) = x + 1, g(x) = 2x - 3$. Find f+g, f-g and $\frac{f}{g}$.

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8. Let f={(1,1), (2,3), (3,5), (4,7)} be a function from Z into Z defined by f(x) = ax + b, for some integers a & b. Determine a & b.

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9. Let f={(1,1),(2,3), (0,-1), (-1, -3)} be a function from Z to Z defined by f(x) = ax +b, for some integers a, b. Determine a, b.

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10. Find the domain of the function $f(x) = \frac{3x}{x^2 + 3x + 2}$

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11. Find the range of the functions $f(x) = \sqrt{x - 3}.$

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12. Find the domain and the range of the real function f defined by $f(x) = \sqrt{(x-1)}$.

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18. Let $f=\{(1,1),(2,3), (0,-1), (-1, -3)\}$ be a function from Z to Z defined by $f(x) = ax + b$, for some integers a, b. Determine a, b.

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Five Marks Questions With Answers

1. Draw the graph of the function: $f: R \to R$ defined by $f(x) = x^3, x \in R.$

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2. Draw the graph of the modulus function $f: R \to R$ defined by $f(x) = |x| \, \forall x \in R.$

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3. Draw the graph of the signum function write its domain and range.

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4. Draw the graph of the modulus function $f: R \to R$ defined by $f(x) = |x| \forall x \in R$.

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