Tishk International University
Architecture Department
First Grade
Fall semester 2023-2024

Question Bank
Chapter -1- and -2-

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Question -1-

Which of the following relations are functions? Give reasons.

(1) {(2, 1), (5, 1), (8, 1), (11, 1), (14, 1), (17, 1)}
(2) {(2, 1), (4, 2), (6, 3), (8, 4), (10, 5), (12, 6), (14, 7)}
(3) {(1, 3), (1, 5), (2, 5)}

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Question -2-

The domain and range of the function *f* given by $f(x) = 2 - |x - 5|$, is

(a) Domain = $(-\infty, +\infty)$, Range = $(-\infty, 1]$

(b) Domain = $(-\infty, +\infty)$, Range = $(-\infty, 2]$

(c) Domain = $(-\infty, +\infty)$, Range = $(-\infty, 2)$

(d) Domain = $(+\infty)$, Range = $(-\infty, 2]$

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Question -3-

The domain and range of real function f defined by $fx=x-1$ is given by

(a) Domain = $(1, \infty)$, Range = $(0, \infty)$

(b) Domain = $[1, \infty)$, Range = $(0, \infty)$

(c) Domain = $[1, \infty)$, Range = $[0, \infty)$

(d) Domain = $[1, \infty)$, Range = $[0, \infty)$

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Question -4-

If $f(x)=\sqrt{3}|x|-x-2$, then which of the following is (are) CORRECT?

(a) Range of f(x) is $[0, \infty)$

(b) Range of f(x) is $[1, \infty)$

(c) Domain of f(x) is $(-\infty, -12] \cup [1, \infty)$

(d) Domain of f(x) is $(-\infty, 12] \cup [1, \infty)$

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Question -5-

If $f(x)=2\sqrt{x-1}+5\sqrt{1-x}+(x2+x+1)3/2$ exists, then domain of $f(x)$ is

(a) $[-1,1]$

(b) $\{-1,1\}$

(c) $\{1\}$

(d) $(-1,1)$

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Question -6-

Find the domain of the functions.

a. $f(x) = 1 / |x^2 - 4|$

b. $g(x) = 1 / (x^2 + 4x + 3)$

c. $h(x) = \sqrt{(x^2 + 5x - 6)}$

d. $k(x) = 1 / \sqrt{(x - 2)^2}$

e. $j(x) = 1 / (x - \sqrt{(x + 2)})$

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Question -7-

Find the range of the functions.

a. $f(x) = -x^2 + 6x + 5$

b. $g(x) = | x + 3 | - 2$

c. $h(x) = (x - 2) / (x + 3)$

d. $k(x) = |x^3 + 4|$

e. $j(x) = | (x + 4) (x - 2) |$

f. $l(x) = | 1/(x - 3) |$

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Question -8-

Find the domain of the functions.

$$a)\ y = \frac{2x}{|3x-3|-6}$$

$$b)\ y = \frac{5x-3}{\sqrt{|x^2+x-2|-4}}$$

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Question -9-

Find the domain of the functions.

$$a)\ y = -\frac{7}{x^2-4x-5}$$

$$b)\ y = -\frac{x-2}{x^2-5x+6}$$

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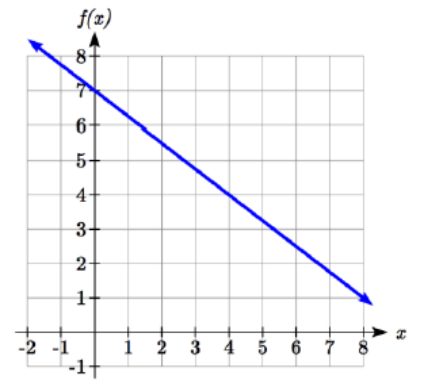
Question -10-

Write an equation for the linear function graphed below.



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Question -11-

Given the table below write a linear equation that represents the table values.

w, number of weeks	0	2	4	6
$P(w)$, number of rats	1000	1080	1160	1240

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Question -12-

Determine if each function is increasing or decreasing.

7. $f(x)=4x+3$	8. $g(x)=5x+6$
9. $a(x)=5-2x$	10. $b(x)=8-3x$
11. $h(x)=-2x+4$	12. $k(x)=-4x+1$
13. $j(x)=\frac{1}{2}x-3$	14. $p(x)=\frac{1}{4}x-5$
15. $n(x)=-\frac{1}{3}x-2$	16. $m(x)=-\frac{3}{8}x+3$

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Question -13-

Find the slope of the line that passes through the two given points.

17. (2, 4) and (4, 10)	18. (1, 5) and (4, 11)
19. (-1,4) and (5, 2)	20. (-2, 8) and (4, 6)
21. (6,11) and (-4,3)	22. (9,10) and (-6,-12)

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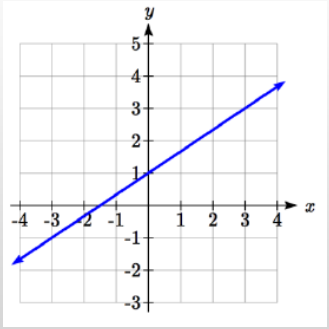
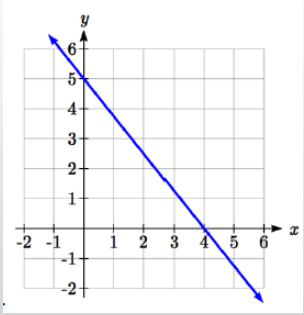
Question -14-

Find the slope of the lines graphed.





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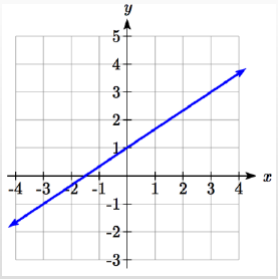
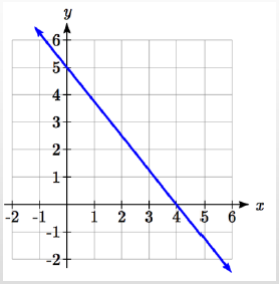
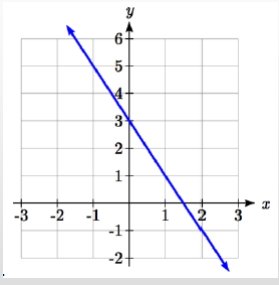
Question -15-

Find an equation for the function graphed.







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Question -16-

Which of the following tables could represent a linear function? For each that could be linear, find a linear equation models the data.

x	*g(x)*
0	5
5	-10
10	-25
15	-40

x	*h(x)*
0	5
5	30
10	105
15	230

x	*f(x)*
0	-5
5	20
10	45
15	70

x	*k(x)*
5	13
10	28
20	58
25	73

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References

- Thomas-Calculus-14th-Edition
- Internet sources

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