وزارة التربية و التعليم

Term-3

Mathematics

2025-2026

EOT Term-3-

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الصف الثاني عشر عام

Grade 12 General

EOT-Q1--15-

جزء-1-

2025-2026

K-RACHID

LIVEWORKSHEETS

Q1

Simplify each expression.

$\frac{(6x^2 - 5xy)(x+2y)}{(x+y)(5y-6x)}$	$\frac{(7y-3x)(5x-1)}{(5x^3+x^2)(3x-7y)}$	$\frac{9x^2-x^3}{x^2-3x-54}$	$\frac{16-c^2}{c^2+c-20}$
$A)\ \frac{x(x+2y)}{x+y}$ $B)\ -\frac{x(x+2y)}{x+y}$ $C)\ \frac{x(x+y)}{x+y}$ $D)\ \frac{-x(x+2y)}{x-y}$	$A)\ -\frac{5x-1}{x^2(5x+1)}$ $B)\ \frac{(7y-3x)(5x-1)}{x^2(5x+1)(3x-7y)}$ $C)\ \frac{1}{x^2}$ $D)\ \frac{5x-1}{5x^3+x^2}$	$A)\ -\frac{x^2}{x+6}$ $B)\ \frac{x^2}{x+3}$ $C)\ \frac{x^2}{x+6}$ $D)\ -\frac{x^2}{x-3}$	$A)\ \frac{c-4}{c+5}$ $B)\ -\frac{c+4}{c-2}$ $C)\ \frac{c-4}{c+2}$ $D)\ -\frac{c+4}{c+5}$

LIVEWORKSHEETS

Q2

Simplify each expression.

$\frac{3x}{8y} \cdot \frac{12x^2y}{9xy^3}$	$\frac{10d^5}{6cd} \div \frac{30c^3d^2}{4c}$	$\frac{14xy^2z^3}{21w^4x^2z} \cdot \frac{7wxyz}{12w^2y^3z}$	$\frac{64a^2b^5}{35b^2c^3f^4} \div \frac{12a^4b^3c}{70abcf^2}$
$A)\ \frac{y^3}{2x^2}$	$A)\ \frac{d}{9c^3}$	$A)\ \frac{z^2}{18w^3}$	$A)\ \frac{32b}{3ac^3f^2}$
$B)\ \frac{x^2}{8y^3}$	$B)\ \frac{2d^2}{9c^3}$	$B)\ \frac{7z}{18w^5}$	$B)\ \frac{32b}{ac^3f^2}$
$C)\ \frac{x}{72y^3}$	$C)\ \frac{d^2}{9c^3}$	$C)\ \frac{7z^2}{18w^5}$	$C)\ \frac{32ba^{-1}}{3cf}$
$D)\ \frac{x^2}{2y^3}$	$D)\ \frac{2d}{9c^2}$	$D)\ \frac{7z}{18w^2}$	$D)\ \frac{32b}{3ac^3f^3}$

LIVEWORKSHEETS

Q3

Simplify each expression.

$\dfrac{\frac{3x}{x-y}}{\frac{6xy}{4x^2-4y^2}}$	$\dfrac{\frac{x^2-9y^2}{xy}}{\frac{2x+6y}{x^2}}$	$\dfrac{\frac{y-x}{z^3}}{\frac{x-y}{6z^2}}$	$\dfrac{\frac{a^2-b^2}{b^3}}{\frac{b^2-ab}{a^2}}$
$A)\ \frac{(x+y)}{y}$ $B)\ \frac{(x-y)}{y}$ $C)\ \frac{2(x-y)}{y}$ $D)\ \frac{2(x+y)}{y}$	$A)\ \frac{x(x-y)}{y}$ $B)\ \frac{x(x+3y)}{2y}$ $C)\ \frac{x(x-3y)}{2y}$ $D)\ \frac{x(x-y)}{2y}$	$A)\ -\frac{6}{z}$ $B)\ \frac{6}{z}$ $C)\ \frac{3}{z}$ $D)\ -\frac{3}{z}$	$A)\ \frac{a^2(a+b)}{b^4}$ $B)\ \frac{a(a+b)}{b^3}$ $C)\ \frac{a+b}{b^3}$ $D)\ \frac{a-b}{b^4}$

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LIVEWORKSHEETS

Q4

Simplify each expression.

$\frac{7a}{4b} + \frac{4c^2}{10}$	$\frac{2x}{9y} - \frac{7y}{6z}$	$\frac{3}{x} + \frac{5}{y}$	$\frac{3}{8p^2r} + \frac{5}{4p^2r}$
$A)\ \frac{a+8bc^2}{22b}$ $B)\ \frac{35a+8bc}{20b^2}$ $C)\ \frac{35a+8bc^2}{20b}$ $D)\ \frac{35a-8c^2}{20b}$	$A)\ \frac{2xz-21y^2}{18yz}$ $B)\ \frac{4xz-21y^2}{18yz}$ $C)\ \frac{2xz+21y^2}{18y^2z}$ $D)\ \frac{4xz-y^2}{18y^2z}$	$A)\ \frac{5x-3y}{xy}$ $B)\ \frac{5x+3y}{xy}$ $C)\ \frac{5x-3y}{x^2y}$ $D)\ \frac{5x+3y}{xy^2}$	$A)\ \frac{13}{8p^2r}$ $B)\ \frac{12}{8p^2r}$ $C)\ \frac{12}{8pr}$ $D)\ \frac{13}{8p^2r^2}$

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LIVEWORKSHEETS

Q5

Simplify each expression.

$\frac{2x+1}{x^2+2x-15} - \frac{7}{5x-15}$	$\frac{3x}{4x^2+4} - \frac{2x^2}{x^4-1}$	$\frac{3t}{2-x} + \frac{5}{x-2}$	$\frac{n}{n-3} + \frac{2n+2}{n^2-2n-3}$
$A)\ \frac{3x-30}{5(x-3)(x+5)}$ $B)\ \frac{3x+30}{(x-3)(x+5)}$ $C)\ \frac{3x-30}{(x+3)(x+5)}$ $D)\ \frac{3x-30}{5(x-3)(x-5)}$	$A)\ \frac{3x^3-8x^2}{4(x^2+1)(x^2-1)}$ $B)\ \frac{3x^3-8x^2}{4(x+1)(x-1)}$ $C)\ \frac{3x^3-8x^2-3x}{4(x+1)(x-1)}$ $D)\ \frac{3x^3-8x^2-3x}{4(x^2+1)(x^2-1)}$	$A)\ \frac{5-3t}{x-2}$ $B)\ \frac{5+3t}{x-2}$ $C)\ \frac{3+5t}{x+2}$ $D)\ \frac{3-5t}{x-2}$	$A)\ \frac{n+2}{n+3}$ $B)\ \frac{n-2}{n-3}$ $C)\ \frac{n+2}{n-3}$ $D)\ \frac{n-2}{n+3}$

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LIVEWORKSHEETS

Q6

What is the parent reciprocal function?	What type of graph does $f(x) = \frac{1}{x}$ produce?	Which value is NOT in the domain of $f(x) = \frac{1}{x}$?	Which value is NOT in the range of $f(x) = \frac{1}{x}$?
$A)\ x^2$ $B)\ \frac{1}{x}$ $C)\ \lvert x \rvert$ $D)\ \sqrt{x}$	$A)$ Parabola $B)$ Circle $C)$ Hyperbola $D)$ Line	$A)\ 3$ $B)\ \frac{1}{3}$ $C)\ 2$ $D)\ 0$	$A)\ 3$ $B)\ \frac{1}{3}$ $C)\ 2$ $D)\ 0$

What is the vertical asymptote of $f(x) = \frac{1}{x}$?	What is the horizontal asymptote of $f(x) = \frac{1}{x}$?	Which statement is true about the x-intercept of $f(x) = \frac{1}{x}$?	Which statement is true about the y-intercept of $f(x) = \frac{1}{x}$?
$A)\ x = 0$ $B)\ y = 1$ $C)\ y = 0$ $D)\ x = 1$	$A)\ x = 0$ $B)\ y = 1$ $C)\ y = 0$ $D)\ x = 1$	$A)$ One x-intercept $B)$ Two x-intercepts $C)$ Infinitely many x-intercepts $D)$ None	$A)$ One y-intercept $B)$ Two y-intercepts $C)$ Infinitely many y-intercepts $D)$ None

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LIVEWORKSHEETS

Q7

Determine the values of x for which $f(x)$ is undefined.

$f(x) = \frac{2}{-2x+5}$	$f(x) = \frac{-12}{-3x-7}$	$f(x) = \frac{5}{x}$	$f(x) = \frac{10}{x-3}$
$A)\ x = \frac{5}{2}$ $B)\ x = 3$ $C)\ x = 0$ $D)\ x = -\frac{7}{3}$	$A)\ x = \frac{5}{2}$ $B)\ x = 3$ $C)\ x = 0$ $D)\ x = -\frac{7}{3}$	$A)\ x = \frac{5}{2}$ $B)\ x = 3$ $C)\ x = 0$ $D)\ x = -\frac{7}{3}$	$A)\ x = \frac{5}{2}$ $B)\ x = 3$ $C)\ x = 0$ $D)\ x = -\frac{7}{3}$

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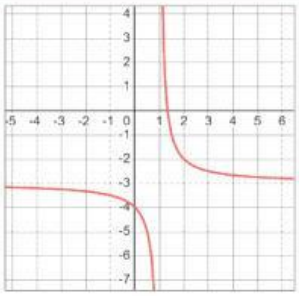
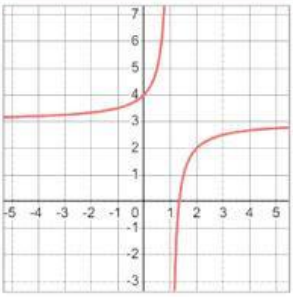
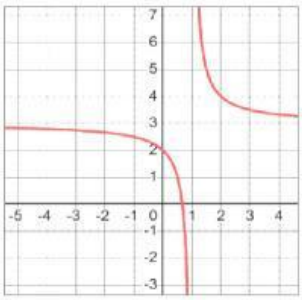
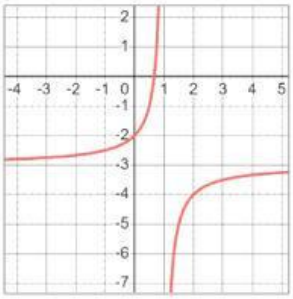
LIVEWORKSHEETS

Q8

Graph $g(x) = \frac{1}{x-1} + 3$.

Graph	Transformations	Domain and Range
$A)$  $B)$  $C)$  $D)$ 	$A)$ $h = -1$, translated left 1 unit $k = -3$, translated down 3 units $B)$ $h = 1$, translated left 1 unit $k = 3$, translated down 3 units $C)$ $h = 1$, translated right 1 unit $k = 3$, translated up 3 units $D)$ $h = 1$, translated right 1 unit $k = -3$, translated down 3 units	$A)$ Domain $\{x \mid x \neq 1\}$ Range $\{y \mid y \neq 3\}$ $B)$ Domain $\{x \mid x \neq -1\}$ Range $\{y \mid y \neq 3\}$ $C)$ Domain $\{x \mid x \neq -1\}$ Range $\{y \mid y \neq -3\}$ $D)$ Domain $\{x \mid x \neq 3\}$ Range $\{y \mid y \neq -1\}$
		Vertical and Horizontal Asymptotes
		$A)$ V.A: $x = 3$ H.A $y = 1$ $B)$ V.A: $x = 1$ H.A $y = 3$ $C)$ V.A: $x = -1$ H.A $y = 3$ $D)$ V.A: $x = 3$ H.A $y = -1$

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Q9

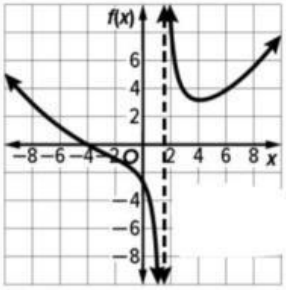
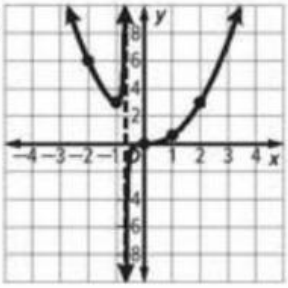
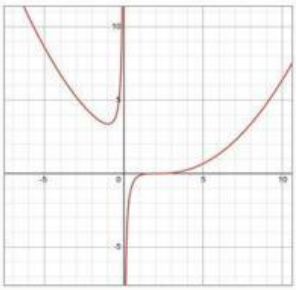
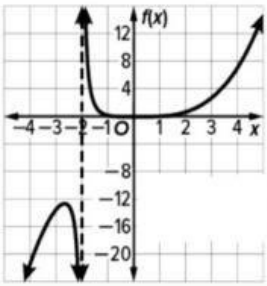
If the degree of the numerator equals the degree of the denominator, the horizontal asymptote is:	Find the horizontal asymptote of $f(x) = \frac{3x^2+1}{5x^2-2}$	Find the horizontal asymptote of $f(x) = \frac{2x+1}{x^3-4}$	Find the horizontal asymptote of $f(x) = \frac{x^4+2}{3x^2+1}$
$A)$ Ratio of leading coefficients $B)$ Product of leading coefficients $C)$ $y = 0$ $D)$No asymptote	$A)$ $y = 0$ $B)$ $y = \frac{5}{3}$ $C)$ $y = \frac{3}{5}$ $D)$ No horizontal asymptote	$A)$ $y = 0$ $B)$ $y = \frac{5}{3}$ $C)$ $y = \frac{3}{5}$ $D)$ No horizontal asymptote	$A)$ $y = 0$ $B)$ $y = \frac{5}{3}$ $C)$ $y = \frac{3}{5}$ $D)$ No horizontal asymptote

What is the vertical asymptote of $f(x) = \frac{1}{x-4}$	What is the vertical asymptote of $f(x) = \frac{x+1}{x^2-9}$	Which function has horizontal asymptote $y = 1$	Which function has no horizontal asymptote?
$A)$ $y = 4$ $B)$ $x = 3$ $C)$ $x = \pm 3$ $D)$ $y = 0$	$A)$ $y = 4$ $B)$ $x = 3$ $C)$ $x = \pm 3$ $D)$ $y = 0$	$A)$ $\frac{x+1}{x+2}$ $B)$ $\frac{1}{x}$ $C)$ $\frac{x}{x^2+1}$ $D)$ $\frac{x^3}{x-1}$	$A)$ $\frac{2x+1}{x^2+3}$ $B)$ $\frac{x^3+1}{x+2}$ $C)$ $\frac{x^2}{x^2+1}$ $D)$ $\frac{5}{x}$

LIVEWORKSHEETS

Q10

Graph $f(x) = \dfrac{x^3}{x + \frac{2}{3}}$

Graph	Find zeros	Find the asymptotes
$A)$  $B)$  $C)$  $D)$ 	$A)\ x = 3$ $B)\ x = \frac{2}{3}$ $C)\ x = -\frac{2}{3}$ $D)\ x = 0$	$A)$ V.A: $x = -\frac{2}{3}$ H.A: none $B)$ V.A: $x = -\frac{2}{3}$ H.A $y = 0$ $C)$ V.A: $x = \frac{2}{3}$ H.A: none $D)$ V.A: $x = 0$ H.A $y = 1$

LIVEWORKSHEETS

Q11

What is another name for an oblique asymptote?	An oblique asymptote is:	A rational function has an oblique asymptote when:	Which function has an oblique asymptote?
$A)$ Vertical asymptote $B)$ Horizontal asymptote $C)$ Slant asymptote $D)$ Curved asymptote	$A)$ Vertical $B)$ Horizontal $C)$ Neither horizontal nor vertical $D)$ Parabola	$A)$ Degree of numerator − degree of denominator = 1 $B)$ Degree of denominator is greater $C)$ Degree of denominator − degree of numerator = 1 $D)$ Degree of numerator = degree of denominator	$A)$ $\frac{x^2_1}{x^2-4}$ $B)$ $\frac{x^2+3x+1}{x+1}$ $C)$ $\frac{x+2}{x^3+1}$ $D)$ $\frac{5}{x-2}$

What method is used to find an oblique asymptote?	The equation of the oblique asymptote is:	Determine the type of asymptote for $f(x) = \frac{x^2+2}{x-2}$	If the degree of the numerator is 3 and the degree of the denominator is 2, the function has:
$A)$ Long/ Synthetic division $B)$ Graphing only $C)$ Factoring $D)$ Substitution	$A)$ The remainder only $B)$ The denominator $C)$ The x-intercept $D)$ The quotient without the remainder	$A)$ Horizontal $B)$ Oblique $C)$ Vertical $D)$ None	$A)$ A vertical asymptote $B)$ An oblique asymptote $C)$ A horizontal asymptote $D)$ No asymptote

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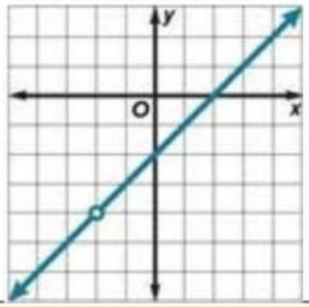
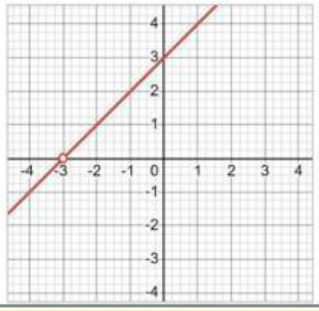
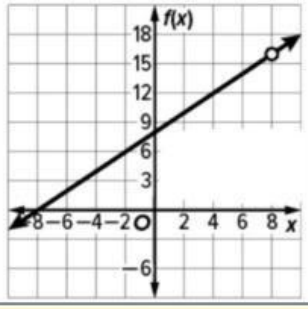
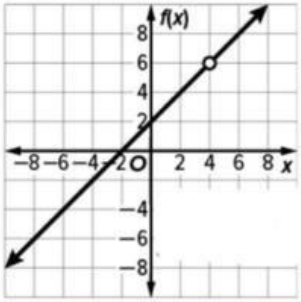
Q12

Key Concept • Point Discontinuity

If $f(x) = \frac{a(x)}{b(x)}$, $b(x) \neq 0$, and $x - c$ is a factor of both $a(x)$ and $b(x)$, then there is a point discontinuity at $x = c$.

Graph each function. Find the point discontinuity.

$f(x) = \frac{x^2 - 4}{x + 2}$	$f(x) = \frac{(x+3)^2}{x+3}$	$f(x) = \frac{x^2 - 2x - 8}{x - 4}$	$f(x) = \frac{x^2 - 64}{x - 8}$
$A)\ x = -3$ $B)\ x = 4$ $C)\ x = -2$ $D)\ x = 8$	$A)\ x = -3$ $B)\ x = 4$ $C)\ x = -2$ $D)\ x = 8$	$A)\ x = -3$ $B)\ x = 4$ $C)\ x = -2$ $D)\ x = 8$	$A)\ x = -3$ $B)\ x = 4$ $C)\ x = -2$ $D)\ x = 8$
			

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LIVEWORKSHEETS

Q13

Solve each equation. Check your solutions.

$\frac{7}{12}+\frac{9}{x-4}=\frac{55}{48}$	$\frac{5}{6}-\frac{2}{4x+1}=\frac{x}{3}$	$\frac{14}{x-2}-\frac{18}{x+1}=\frac{22}{x^2-x-2}$	$\frac{2}{a+2}+\frac{10}{a+5}=\frac{36}{a^2+7a+10}$
$A)\ x=\frac{1}{2}$ and $\frac{7}{4}$ $B)\ x=20$ $C)\ x=7$ $D)\ x=\frac{1}{2}$	$A)\ x=\frac{1}{2}$ and $\frac{7}{4}$ $B)\ x=20$ $C)\ x=7$ $D)\ x=\frac{1}{2}$	$A)\ x=\frac{1}{2}$ and $\frac{7}{4}$ $B)\ x=20$ $C)\ x=7$ $D)\ x=\frac{1}{2}$	$A)\ x=\frac{1}{2}$ and $\frac{7}{4}$ $B)\ x=20$ $C)\ x=7$ $D)\ x=\frac{1}{2}$

LIVEWORKSHEETS

Q14

Solve each equation. Check your solutions.

$\frac{2m}{m-4} - \frac{m^2+7m+4}{3m^2-18m+24} = \frac{4m}{3m-6}$	$\frac{3x}{x-4} - \frac{x^2-7x-4}{x^2-16} = \frac{5}{x+4}$	$\frac{x}{2x-1} + \frac{3}{x+4} = \frac{21}{2x^2+7x-4}$	$\frac{2}{y-5} + \frac{y-1}{2y+1} = \frac{2}{2y^2-9y-5}$
$A)\ x = 1$ $B)\ x = 4$ $C)\ x = -1$ $D)\ x = -1$ and 4	$A)\ x = -3$ $B)\ x = -4$ $C)\ x = -3$ and -4 $D)\ x = 3$	$A)\ x = -2$ $B)\ x = -12$ and -2 $C)\ x = -12$ $D)\ x = 2$	$A)\ x = -5$ $B)\ x = 5$ $C)\ x = 2$ $D)\ \emptyset$

LIVEWORKSHEETS