Algebra 2 2019 Semester 1 Final Exam Study Guide

Topic 1

Use the function below to find the f(6) term

f(n)=3n+2 $f(6)=3(6)+2=20$

f(n)=2n-8 $f(6)=2(6)-8=4$

f(n)=-6n+5 $f(6)=-6(6)+5=-31$

f(n)=3^n $f(6)=3^6=729$

Use the recursive formulas below to write the sequences and find the 6th term

$a_1=5$, $a_n=a_{n-1}+8$

1	2	3	4	5	6
5	13	21	29	37	45

$a_1=55$, $a_n=a_{n-1}-9$

1	2	3	4	5	6
55	46	37	28	19	10

$a_1=2$, $a_n=3a_{n-1}$

1	2	3	4	5	6
2	6	18	54	162	486

$a_1=5$, $a_n=a_{n-1}+8$ same as above

Jamal is planning the seating for the new auditorium. He drew 15 seats for the first row, and is planning on each following row to have 3 more seats. Write a function that can be used to solve for the number of seats Jamal will have in the nth row.

Write a recursive rule that would show how many seats would be in the nth row.

$a_1=15$ $a_n=a_{n-1}+3$

How many seats are in row 10?

1	2	3	4	5	6	7	8	9	10
15	18	21	24	27	30	33	36	39	42

How many seats are there in the first 10 rows?

285

Jenny is collecting leaves for her science project. She collects 2 leaves on the first day, and plans on tripling that number on day two. If she continues that pattern, how many leaves will she collect on day 8?

How many leaves would she have collected total on day 8? 4,374

1	2	3	4	5	6	7	8
2	6	18	54	162	486	1458	4374

Write a recursive rule for this pattern

$a_1=2$ $a_n=3a_{n-1}$

Write the general function for the pattern

$y=\frac{2}{3}\cdot 3^x$

Given the first 5 terms of the sequence, write the function rule

6, 13, 20, 27, 34.... +7 $y=7x-1$

2, 4, 8, 16, 32..... ×2 $y=2^x$

22, 20, 18, 16, 14.... -2 $y=-2x+24$

4, 6, 9, 13.5, 20.25... ×1.5 $y=2.7\cdot 1.5^x$

Given the first 5 terms of the sequence, write the recursive rule

6, 13, 20, 27, 34.... +7 $a_1=6$, $a_n=a_{n-1}+7$

2, 4, 8, 16, 32..... ×2 $a_1=2$, $a_n=2a_{n-1}$

22, 20, 18, 16, 14.... -2 $a_1=22$, $a_n=a_{n-1}-2$

4, 6, 9, 13.5, 20.25... ×1.5 $a_1=4$, $a_n=1.5a_{n-1}$

Topic 2: Inverses

1 a) What kind of function is the inverse of an exponential function?

logarithmic

b) Write the domain and range of both an exponential function and its inverse.

exponential
d: all real numbers
r: all real #s > 0

logarithmic
d: all real #s > 0
r: all real numbers

2 Write the equation of the inverse of the following functions:

a) $y = 4^x$ $Y = \log_4 X$

b) $y = 10^x$ $Y = \log_{10} X$

c) $y = 25^x$ $Y = \log_{25} X$

d) $y = b^x$ $Y = \log_b X$

3 Write the inverse for the given table.

Number of Students	2	3	4	6	8
Number of Cookies	12	8	6	4	3

12	8	6	4	3
2	3	4	6	8

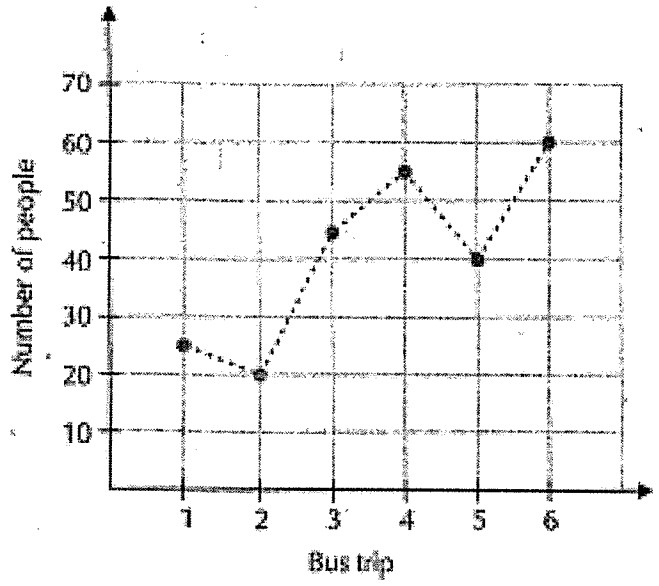
4 Find the error.

Alyssa says that the inverse of b= 5t- 2 is 5b+2= t because you switch the variables and do the opposite math.

$t = 5b - 2$
$+2 \quad +2$
$\frac{t+2}{5} = \frac{5b}{5}$

$\frac{t+2}{5} = b$

5 Graph the Inverse.

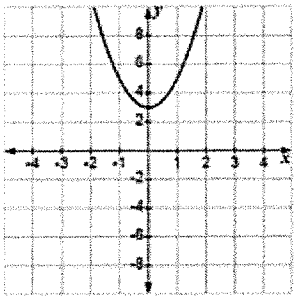


original	inverse
1, 25	25, 1
2, 20	20, 2
3, 45	45, 3
4, 55	55, 4
5, 40	40, 5
6, 60	60, 6

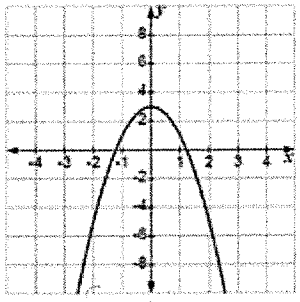
Topic 3

$y = a(x-h)^2 + k$

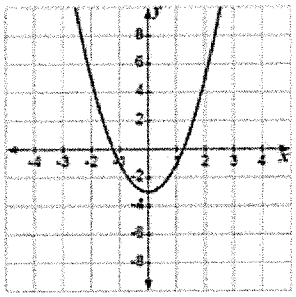
1) Identify whether the ***a*** and ***k*** values are positive or negative for the following graphs.



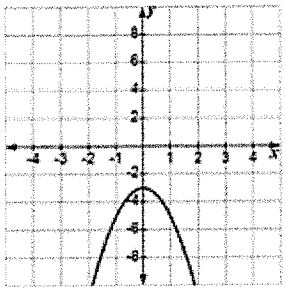
a: pos
k: pos



a: neg
k: pos

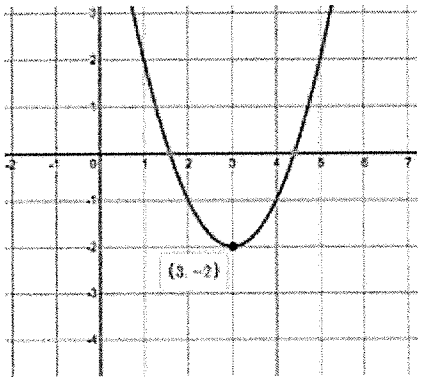


a: pos
k: neg

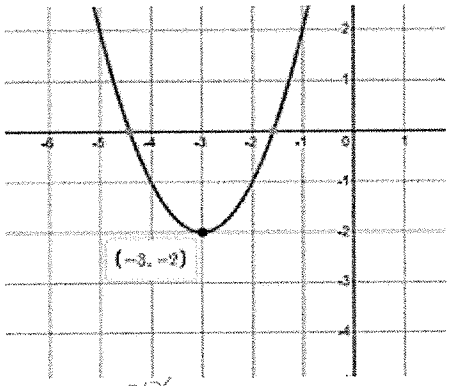


a: neg
k: neg

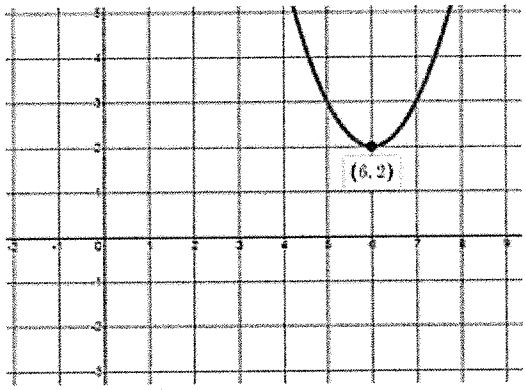
2) Create a function that best fits each graph shown.



a: pos
k: neg



a: pos
k: neg



a: pos
k: pos

3) Describe the transformations to the function f(x) to get g(x)= $\frac{1}{2}f(x-2)+3$

- vertical shrink by factor of 1/2
- horizontal shift to the right 2
- vertical shift up 3

4) Describe the transformations to the function f(x) to get g(x)= $2f(x+5)-7$

- vertical stretch by factor of 2
- horizontal shift to the left 5
- vertical shift down 7

5) Describe the transformations to the function f(x) to get g(x)= $-3f(x-6)-4$

- vertical stretch by factor of three + flip over x axis. - horizontal shift to the right 6, vertical shift down 4

6) What happens to the function f(x)= $a(x-h)^2+k$, if the value of ***a*** is changed from 2 to $-\frac{1}{4}$?

vertical shrink by factor of 1/4 + flips over x-axis

7) What do the ***a, h,*** and ***k*** values do to the function f(x)= $a(x-h)^2+k$?

a: vertical stretch/shrink, + = ↑, − = ↓
h: horizontal shift, left or right
k: vertical shift, up or down

Topic 4: Introduction to Polynomial Functions

Directions: Simplify the following by performing the indicated math operation.

1) $(2x-3)(x+5)$

$2x^2+10x-3x-15=$

$2x^2+7x-15$

2) $(2x^2+5x-3)+(3x^2-2x+5)$

$5x^2+3x+2$

3) $(5x^3+3x^2-3x)-(4x^2-6x)$

$5x^3-x^2+3x$

4) $5x^2(x^2+6x-2)$

$5x^4+30x^3-10x^2$

5) $(6x^3-4x^2+5x)+(2x^3+3x^2-7x)$

$8x^3-x^2-2x$

6) $(3x^3-2x^2+6)-(5x^3+5x^2+7x)$

$-2x^3-7x^2-7x+6$

7) $(x-3)(2x^2+4x-5)$

$2x^3+4x^2-5x-6x^2-12x+15=$

$2x^3-2x^2-17x+15$

8) $(4x^4-3x^2+5)+(2x^3-6x^2)$

$4x^4+2x^3-9x^2+5$

9) $(4x^2+2x)-(-5x^2+6x-3)$

$9x^2-4x+3$

10) $(2x+1)(x^2-3x+2)$

$2x^3-6x^2+4x+x^2-3x+2=$

$2x^3-5x^2+x+2$

11) $(8x^2+3)+(5x^3-6x^2+2)$

$5x^3+2x^2+5$

12) $(2x^3-5x+2)-(x^3+6x+4)$

$x^3-11x-2$

13) $3x(2x+4)(x-5)$

$3x(2x^2-10x+4x-20)$

$6x^3-18x^2-60x$

14) $(6x^3-2x+6)+(3x^2-6x+4)$

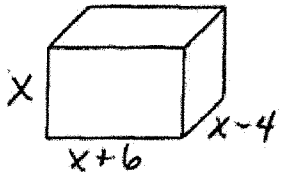
$6x^3+3x^2-8x+10$

15) $(4x^4-2x-6)-(3x^3-4x^2-3x+2)$

$4x^4+3x^3+4x^2+x-8$

Directions: Find the volume of the following.. $V = l \cdot w \cdot h$

16)

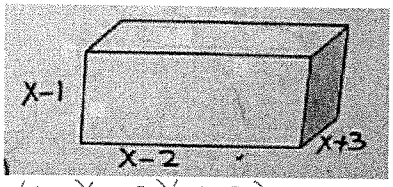


$V=x(x+6)(x-4)$

$V=x(x^2+2x-24)$

$V=x^3+2x^2-24x$

17)



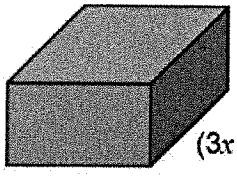
$V=(x-1)(x-2)(x+3)$

$V=(x-1)(x^2+x-6)$

$V=x^3+x^2-6x-x^2-x+6$

$V=x^3-7x+6$

18)

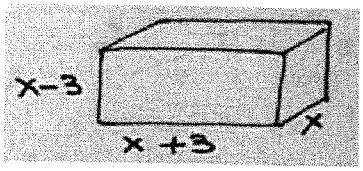


$V=(2x+3)(3x-1)(x+7)=(2x+3)(3x^2+20x-7)$

$V=6x^3+40x^2-14x+60x^2+140x-21$

$V=6x^3+49x^2+126x-21$

19)

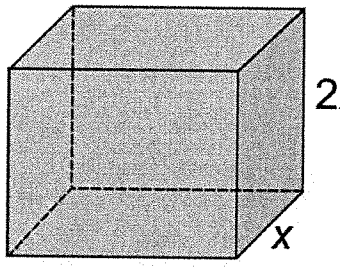


$V=x(x+3)(x-3)$

$V=x(x^2-9)$

$V=x^3-9x$

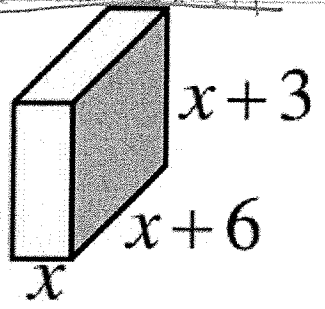
20)



$V=x(2x+1)(x+2)=x(2x^2+5x+3)$

$V=2x^3+5x^2+3x$

21)



$V=x(x+3)(x+6)$

$V=x(x^2+9x+18)$

$V=x^3+9x^2+18x$

Directions: Identify the leading coefficient, degree and constant.

22) $3x^4+2x^2-5$

LCOE: 3

Degree: 4

Constant: -5

23) $2x-4x^2+8+3x^3$

LCOE: 3

Degree: 3

Constant: 8

24) $3x+5x^2-2+4x-7x^2$

LCOE: -2

degree: 2

constant: -2

25) $6x-3x^3+4x^5-2x^3$

LCOE: 4

Degree: 5

constant: 0

26) $4x-8+3x^3-2x$

LCOE: 3

Degree: 3

constant: -8

27) $6x^3+4x^2-8x+2$

LCOE: 6

Degree: 3

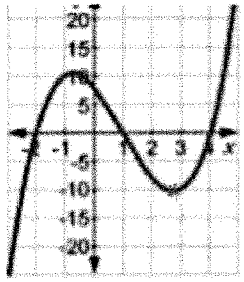
Constant: 2

Topic 5: Analyzing Polynomial Functions

Directions: For each of the following, answer the following

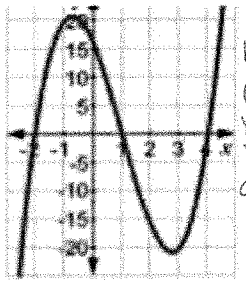
a) Positive or Negative Leading Coefficient
b) Degree
c) End Behavior
d) Local and/or Global Maximums or Minimums **(on graphs only)**
e) Constant

A.



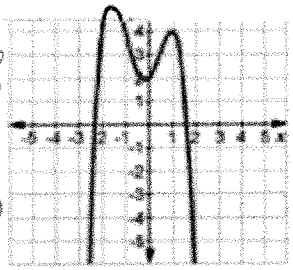
a. +
b. 3
c. L: $x \to -\infty$, $y \to -\infty$; R: $x \to \infty$, $y \to \infty$
d. Lmin: (2.5, -10); Lmax: (-0.75, 10)
e. 7.5

B.



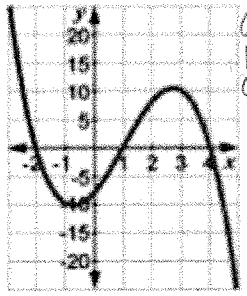
a. +
b. 3
c. L: $x \to -\infty$, $y \to -\infty$; R: $x \to \infty$, $y \to \infty$
d. L.min (2.75, -21); L.max (-0.75, 20)
e. 16

E.



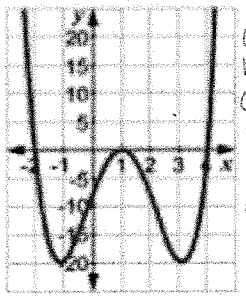
a. −
b. 4
c. L: $x \to -\infty$, $y \to -\infty$; R: $x \to \infty$, $y \to -\infty$
d. L.max (1, 4); G.max (-1.5, 5); L.min (0, 2)
e. 2

B.



a. −
b. 3
c. L: $x \to -\infty$, $y \to \infty$; R: $x \to \infty$, $y \to -\infty$
d. Lmin: (-0.5, -10); Lmax: (2.75, 10)
e. 7.5

D.



a. +
b. 4
c. L: $x \to -\infty$, $y \to \infty$; R: $x \to \infty$, $y \to \infty$
d. L.min (-1, 20) & (3, 20)

F) $3x^4 - 4x + 6$

a. + b. 4 c. L: $x \to -\infty$, $y \to \infty$; R: $x \to \infty$, $y \to \infty$ e. 16

G) $-6x^5 + 4x^3 + 4x^2$

a. − b. 5 c. L: $x \to \infty$, $y \to \infty$; R: $x \to \infty$, $y \to -\infty$ e. 0

H) $4x^3 - 5x^2 + 6x - 2$

a. + b. 3 c. L: $x \to -\infty$, $y \to -\infty$; R: $x \to \infty$, $y \to \infty$ e. −2

I) $5x - 2x^2 + 7$ $\quad -2x^2 + 5x + 7$

a. − b. 2 c. L: $x \to -\infty$, $y \to -\infty$; R: $x \to \infty$, $y \to -\infty$ e. 7

J) $3x^2 + 2x^5 - 3x^3$ $\quad 2x^5 - 3x^3 + 3x^2$

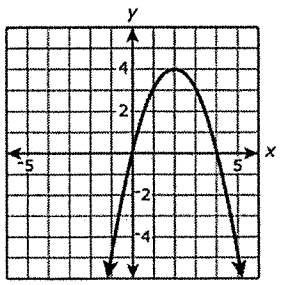
a. + b. 2 c. L: $x \to -\infty$, $y \to \infty$; R: $x \to \infty$, $y \to \infty$ e. 0

K) $3 - 5x^6 - 4x^2 + 5x$ $\quad -5x^6 - 4x^2 + 5x$

a. − b. 6 c. L: $x \to -\infty$, $y \to -\infty$; R: $x \to \infty$, $y \to -\infty$ e. 0

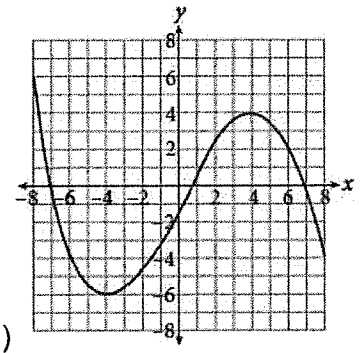
Directions: For the following graphs, identify the increasing/ decreasing intervals.

L)



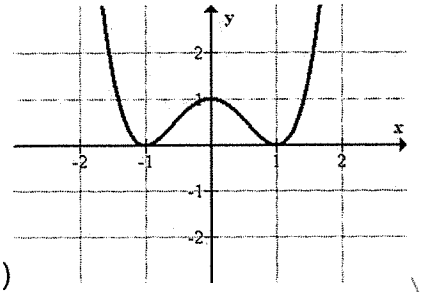
inc $(-\infty, 2)$
dec $(2, \infty)$

M)



inc $(-4, 4)$
dec $(-\infty, 4) \cup (4, \infty)$

N)



inc $(-1, 0) \cup (1, \infty)$
dec $(-\infty, -1) \cup (0, 1)$

Topic 6: Polynomial Equations

Directions: Solve the following equations.

1) $(x+10)(x-7)=0$

$x+10=0 \quad x-7=0$

$x=-10 \quad x=7$

2) $x(x+9)(x+6)(x+1)=0$

$x=0 \quad x=-9 \quad x=-6 \quad x=-1$

3) $x(7x+3)(5x-2)=0$

$x=0 \quad 7x+3=0 \quad 5x-2=0$

$x=-\frac{3}{7} \quad x=\frac{2}{5}$

4) $(x+3)(x-2)=0$

$x=-3 \quad x=2$

5) $x(x+4)(x-1)(x-2)(x+5)=0$

$x=0 \quad x=-4 \quad x=1 \quad x=2 \quad x=-5$

6) $(5x-15)(2x+3)=0$

$5x-15=0 \quad 2x+3=0$

$5x=15 \quad x=-\frac{3}{2}$

$x=3$

$i^2=-1$

Directions: Simplify each radical.

7) $\sqrt{-4}$

$\sqrt{-1\cdot 4}=\sqrt{i^2\cdot 4}=2i$

8) $\sqrt{-72}$

$\sqrt{-1\cdot 36\cdot 2}$

$\sqrt{i^2\cdot 36\cdot 2}$

$6i\sqrt{2}$

9) $\sqrt{-48}$

$\sqrt{-1\cdot 16\cdot 3}$

$\sqrt{i^2\cdot 16\cdot 3}$

$4i\sqrt{3}$

10) $\sqrt{-50}$

$\sqrt{-1\cdot 25\cdot 2}$

$\sqrt{i^2\cdot 25\cdot 2}$

$5i\sqrt{2}$

11) $\sqrt{-36}$

$\sqrt{-1\cdot 36}$

$\sqrt{i^2\cdot 36}$

$6i$

Directions: Use the *quadratic formula* to solve each of the following.

12) $2x^2-2x-4=0$

x^2-x-2

$a=1 \quad b=-1 \quad c=-2$

$x=\frac{1\pm\sqrt{1+8}}{2}$

$x=\frac{1\pm\sqrt{9}}{2}$

$x=\frac{1\pm 3}{2}$

$x=2 \quad x=-1$

13) $x^2-4x-4=0$

$a=1 \quad b=-4 \quad c=-4$

$x=\frac{4\pm\sqrt{32}}{2}$

$x=\frac{4\pm\sqrt{16\cdot 2}}{2}$

$x=\frac{4\pm 4\sqrt{2}}{2}$

$x=2\pm 2\sqrt{2}$

14) $-2x^2-2x-1=0$

$a=-2 \quad b=-2 \quad c=-1$

$x=\frac{2\pm\sqrt{(-2)^2-4(-2)(-1)}}{-4}$

$x=\frac{2\pm\sqrt{4-8}}{-4}$

$x=\frac{2\pm\sqrt{4\cdot -1}}{-4}$

$x=\frac{2\pm 2i}{-4}$

$x=\frac{1\pm i}{-2}$

15) $4x^2-5x+1=0$

$a=4 \quad b=-5 \quad c=1$

$x=\frac{5\pm\sqrt{(-5)^2-4(4)(1)}}{2(4)}$

$x=\frac{5\pm\sqrt{25-16}}{8}$

$x=\frac{5\pm 3}{8}$

16) $6x^2-8x-2=0$

$a=3 \quad b=-4 \quad c=-1$

$3x^2-4x-1=0$

$x=\frac{4\pm\sqrt{(-4)^2-4(3)(-1)}}{2(3)}$

$x=\frac{4\pm\sqrt{16+12}}{6}$

$x=\frac{4\pm\sqrt{28}}{6}$

$x=\frac{4\pm\sqrt{4\cdot 7}}{6}$

$x=\frac{4\pm 2\sqrt{7}}{6}$

$x=\frac{2\pm\sqrt{7}}{3}$

17) $9x^2-9x+5=0$

$9x^2-9x+5=0$

$a=9 \quad b=-9 \quad c=5$

$x=\frac{9\pm\sqrt{(-9)^2-4(9)(5)}}{2(9)}$

$x=\frac{9\pm\sqrt{81-180}}{18}$

$x=\frac{9\pm\sqrt{-99}}{18}$

$x=\frac{9\pm\sqrt{-1\cdot 9\cdot 11}}{18}$

$x=\frac{9\pm\sqrt{i^2\cdot 9\cdot 11}}{18}$

$x=\frac{9\pm 3i\sqrt{11}}{18}$

$x=\frac{3\pm i\sqrt{11}}{6}$

Directions: Simplify each expression.

18) $(-7+7i)+(-3+4i)$

$-10+11i$

19) $(-8+6i)-(6+i)$

$-14+5i$

20) $(7-5i)(-4+6i)$

$-28+42i+20i-30i^2$

$-28+62i-30=-58+62i$

21) $(2+2i)(-4-3i)$

$-8-6i-8i-6i^2=-8-14i+6$

$-2-14i$

22) $(-2-i)+(2-4i)$

$0-5i=-5i$

23) $(8-6i)-(1-2i)$

$7-4i$

24) $(-5-2i)-(-7-2i)$

2

25) $(-8-i)(-8-2i)$

$64+16i+8i+2i^2$

$64+24i-2$

$62+24i$

26) $(-7+5i)+(6+3i)$

$-1+8i$

Topic 9 Review

1. Factor $n^2 - 16n - 80$

$(n-20)(n+4)$

2. Factor $4n^2 + 16n - 9$

-36, $-\frac{1}{2}$, $-\frac{2}{4}$, $\frac{18}{4}=\frac{9}{2}$, 16

$(2x-1)(2x+9)$

3. Simplify and state the asymptotes of $\frac{n^2-2n-8}{8n+24} \div \frac{2n-8}{n^2+7n+12}$

1. n^2-2n-8 $(n-4)(n+2)$ 2. $8n+24$ $8(n+3)$ 3. $n^2+7n+12$ $(n+3)(n+4)$ 4. $2n-8$ $2(n-9)$

$\frac{n^2-2n-8}{8n+24} \cdot \frac{n^2+7n+12}{2n-8}$

$\frac{(n-4)(n+2)}{8(n+3)} \cdot \frac{(n+3)(n+4)}{2(n-4)}$

$\frac{(n+2)(n+4)}{16}$

no V.A.

4. Simplify and state the asymptotes of $\frac{(n+13)(2n+9)}{(13n-2)(n+2)} \cdot \frac{(n+2)(2n-6)}{(n+13)(2n-6)}$

$\frac{2n+9}{13n-2}$

$13n-2=0$

V.A. @ $n=\frac{2}{13}$

5. What are the asymptotes of $\frac{2n^2-9n-5}{3n^2-2n-33}$?

1. $2n^2-9n-5$: -10, $\frac{1}{2}$, $\frac{-10}{2}=-5$, -9, 1 → $(2x+1)(x-5)$

2. $3n^2-2n-33$: -99, $\frac{9}{3}$, $\frac{-11}{3}$, -2, 3 → $(x+3)(3x-11)$

$\frac{(2x+1)(x-5)}{(x+3)(3x-11)}$

V.A. @ $x=3$ + $x=\frac{11}{3}$

6. Simplify and state the asymptotes of $\frac{4x^2+8x-5}{(2x-1)(x-5)(x-1)}$

$4x^2+8x-5$: -20, $-\frac{1}{2}$, $-\frac{2}{4}$, $\frac{10}{4}=\frac{5}{2}$, 8 → $(2x-1)(2x+5)$

$\frac{(2x-1)(2x+5)}{(2x-1)(x-5)(x-1)} = \frac{2x+5}{(x-5)(x-1)}$

V.A. @ $x=5$ + $x=1$

7. Simplify and state the asymptotes of $\frac{x}{x+2} - \frac{3x-5}{x^2+3x+2}$

$\frac{(x+1)}{(x+1)}\frac{x}{x+2} - \frac{3x-5}{(x+1)(x+2)} = \frac{x^2+x}{(x+1)(x+2)} - \frac{3x-5}{(x+1)(x+2)} = \frac{x^2-2x+5}{(x+1)(x+2)}$

V.A. @ $x=-1$ + $x=-2$

$a=1$, $b=-2$, $c=5$

$x=\frac{2\pm\sqrt{(-2)^2-4(1)(5)}}{2(1)}$

$x=\frac{2\pm\sqrt{4-20}}{2}$

$x=\frac{2\pm\sqrt{-16}}{2}$

- no real x-intercepts
- not factorable

8. Write your own rational expression with an asymptote at $x = \frac{-3}{7}$.

$\frac{x+1}{7x+3}$ ← You can put anything in the numerator!

or $\frac{1}{7x+3}$ or $\frac{x}{7x+3}$ or $\frac{7x^6+21x^5+x^3}{7x+3}$ or $\frac{\star}{7x+3}$

Since $7x+3=0$, $-3\ \ -3$, $\frac{7x}{7}=\frac{-3}{7}$, $x=-\frac{3}{7}$

* Don't forget to check for extraneous solutions *

Topic 11

$(\sqrt{2x+8})^2 = (-12)^2$

$2x+8 = 144$

$-8 \quad -8$

$\frac{2x}{2} = \frac{136}{2}$

$x = 68$

$\sqrt{2(68)+8} = -12$

$\sqrt{136+8} = -12$

$\sqrt{144} = -12$

$12 \neq -12$

no solution

$\sqrt{2x-1}+2 = -1$

$-2 \quad -2$

$\sqrt{2x-1} = -3$

a square root cannot equal a negative number, no solution

$\sqrt{3x}+8 = 2$

$-8 \quad -8$

$(\sqrt{3x})^2 = (-6)^2$

$\frac{3x}{3} = \frac{36}{3}$

$x = 12$

$\sqrt{3(12)}+8 = 2$

$-8 \quad -8$

$\sqrt{36} = -6$

$6 \neq -6$

no solution

$\sqrt{2x-6}+4 = x$

$-4 \quad -4$

$(\sqrt{2x-6})^2 = (x-4)^2$

$2x-6 = x^2-8x+16$

$-x^2+8x-16+2x-6 = 0$

$-x^2+10x-22 = 0$

$a=-1 \quad b=10 \quad c=-22$

$x = \frac{-10 \pm \sqrt{10^2-4(-1)(-22)}}{2(-1)}$

$x = \frac{-10 \pm \sqrt{100-88}}{-2}$

$x = \frac{-10 \pm \sqrt{12}}{-2}$

$x = \frac{-10 \pm 2\sqrt{3}}{-2}$

$x = 5 \pm -\sqrt{3}$

I know this is messy, you can double check in a graph!

$\frac{2\sqrt{2x-1}}{2} = \frac{-6}{2}$

$(\sqrt{2x-1})^2 = (-3)^2$

$2x-1 = 9$

$+1 \quad +1$

$\frac{2x}{2} = \frac{10}{2}$

$x = 5$

$2\sqrt{2(5)-1} = -6$

$2\sqrt{10-1} = -6$

$2\sqrt{9} = -6$

$2(3) = -6$

$6 \neq -6$

no solution

$(\sqrt{3x+1})^2 = (x-1)^2$

$3x+1 = x^2-2x+1$

$-x^2+2x-1$

$-x^2+5x = 0$

$x(-x+5) = 0$

$-x+5 = 0$

-5

$-x = -5$

$x = 5$

$x = 0$

$\sqrt{3(0)+1} = 0-1$

$1 \neq -1$

$\sqrt{3(5)+1} = 5-$

$4 = 4$ ✓

$\sqrt{x-1}+4 = x-3$

$-4 \quad -4$

$(\sqrt{x-1})^2 = (x-7)^2$

$x-1 = x^2-14x+49$

$-x^2+15x-50 = 0$

$\frac{-5}{-1} \quad \frac{50}{-1} \quad \frac{-10}{-1}$

$(-x+5)(-x+10)$

$-x+5=0 \quad -x+10=$

$x=5 \quad x=10$

$\sqrt{5-1}+4 = 5$

$6 \neq 2$

$\sqrt{10-1}+4 = 10$

$7 = 7$ ✓

$\frac{3\sqrt{5-4x}}{3} = \frac{3x}{3}$

$(\sqrt{5-4x})^2 = (x)^2$

$5-4x = x^2$

$-x^2 \quad -x^2$

$-x^2-4x+5 = 0$

$-5 \quad \frac{-5}{-1} \quad \frac{5}{1}$

$\frac{1}{-1} \quad -4$

$(-x+1)(x+5)$

$x=1 \quad x=-5$

$3\sqrt{5-4(1)} = 3(1)$

$3\sqrt{1} = 3$

$3 = 3$ ✓

$3\sqrt{5-4(-5)} = 3(-5)$

$3\sqrt{25} = -15$

$15 \neq -15$