Name: _____GCF Practice Period _____

Problem 1

Polynomial function: $f(x)=8\cdot x^4-18\cdot x^2$

Polynomial Equation: $8\cdot x^4-18\cdot x^2=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

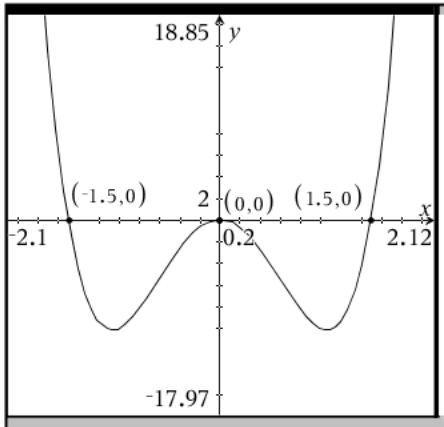
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ◯ has GCF (greatest common factor)
- ◯ is PST (perfect square trinomial)
- ◯ is DOTS (difference of two squares)
- ◯ is SOTC (sum of two cubes)
- ◯ is DOTC (difference of two cubes)
- ◯ is a multiple of one of the above
- ◯ cannot be factored
- ◯ has positive solutions
- ◯ has negative solutions
- ◯ has both positive and negative solutions
- ◯ has zero as a solution
- ◯ has imaginary solutions
- ◯ has irrational solutions



$8\cdot x^4-18\cdot x^2=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Problem 2

Polynomial function: $f(x)=12\cdot x^3+12\cdot x^2+3\cdot x$

Polynomial Equation: $12\cdot x^3+12\cdot x^2+3\cdot x=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

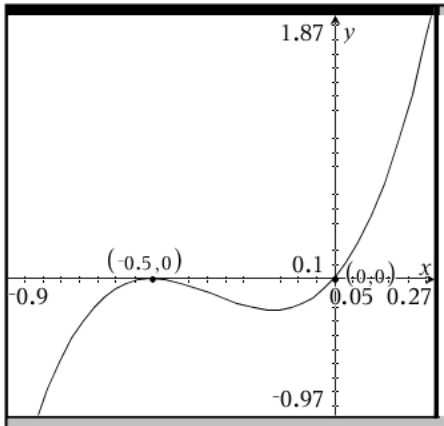
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ◯ has GCF (greatest common factor)
- ◯ is PST (perfect square trinomial)
- ◯ is DOTS (difference of two squares)
- ◯ is SOTC (sum of two cubes)
- ◯ is DOTC (difference of two cubes)
- ◯ is a multiple of one of the above
- ◯ cannot be factored
- ◯ has positive solutions
- ◯ has negative solutions
- ◯ has both positive and negative solutions
- ◯ has zero as a solution
- ◯ has imaginary solutions
- ◯ has irrational solutions



$12\cdot x^3+12\cdot x^2+3\cdot x=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Name: _____GCF Practice Period _____

Problem 3

Polynomial function: $f(x)=2\cdot x-50\cdot x^{3}$

Polynomial Equation: $2\cdot x-50\cdot x^{3}=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

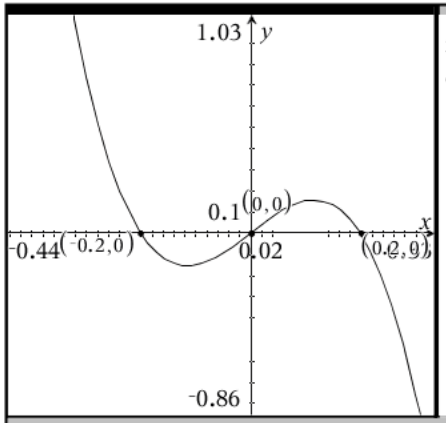
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ◯ has GCF (greatest common factor)
- ◯ is PST (perfect square trinomial)
- ◯ is DOTS (difference of two squares)
- ◯ is SOTC (sum of two cubes)
- ◯ is DOTC (difference of two cubes)
- ◯ is a multiple of one of the above
- ◯ cannot be factored
- ◯ has positive solutions
- ◯ has negative solutions
- ◯ has both positive and negative solutions
- ◯ has zero as a solution
- ◯ has imaginary solutions
- ◯ has irrational solutions



$2\cdot x-50\cdot x^{3}=0$

GCF=_____

completely factored form of the polynomial _____

Solutions _____

Problem 4

Polynomial function: $f(x)=-2\cdot x^{3}+4\cdot x^{2}+16\cdot x$

Polynomial Equation: $-2\cdot x^{3}+4\cdot x^{2}+16\cdot x=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

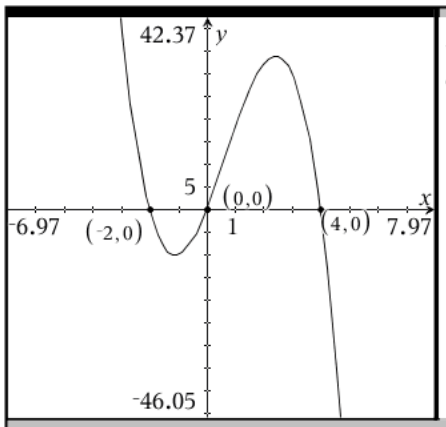
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ◯ has GCF (greatest common factor)
- ◯ is PST (perfect square trinomial)
- ◯ is DOTS (difference of two squares)
- ◯ is SOTC (sum of two cubes)
- ◯ is DOTC (difference of two cubes)
- ◯ is a multiple of one of the above
- ◯ cannot be factored
- ◯ has positive solutions
- ◯ has negative solutions
- ◯ has both positive and negative solutions
- ◯ has zero as a solution
- ◯ has imaginary solutions
- ◯ has irrational solutions



$-2\cdot x^{3}+4\cdot x^{2}+16\cdot x=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Name: _____GCF Practice Period _____

Problem 5

Polynomial function: $f(x)=5\cdot x^3-60\cdot x^2+180\cdot x$

Polynomial Equation: $5\cdot x^3-60\cdot x^2+180\cdot x=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

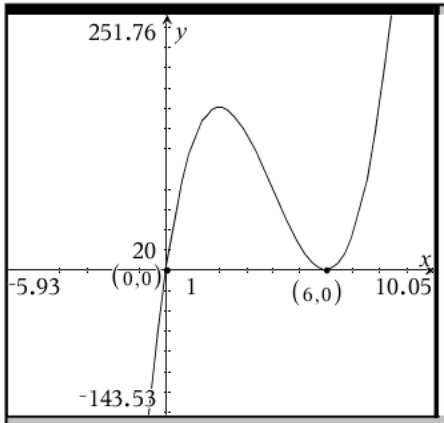
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ○ has GCF (greatest common factor)
- ○ is PST (perfect square trinomial)
- ○ is DOTS (difference of two squares)
- ○ is SOTC (sum of two cubes)
- ○ is DOTC (difference of two cubes)
- ○ is a multiple of one of the above
- ○ cannot be factored
- ○ has positive solutions
- ○ has negative solutions
- ○ has both positive and negative solutions
- ○ has zero as a solution
- ○ has imaginary solutions
- ○ has irrational solutions



$5\cdot x^3-60\cdot x^2+180\cdot x=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Problem 6

Polynomial function: $f(x)=6\cdot x^3-24\cdot x$

Polynomial Equation: $6\cdot x^3-24\cdot x=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

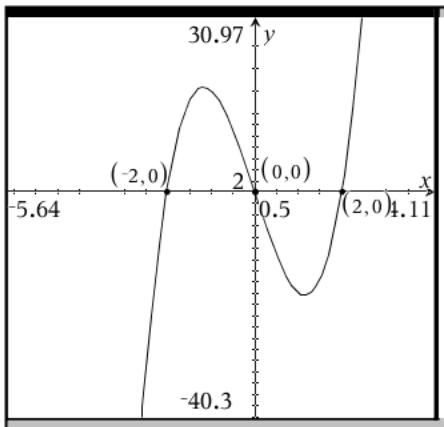
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ○ has GCF (greatest common factor)
- ○ is PST (perfect square trinomial)
- ○ is DOTS (difference of two squares)
- ○ is SOTC (sum of two cubes)
- ○ is DOTC (difference of two cubes)
- ○ is a multiple of one of the above
- ○ cannot be factored
- ○ has positive solutions
- ○ has negative solutions
- ○ has both positive and negative solutions
- ○ has zero as a solution
- ○ has imaginary solutions
- ○ has irrational solutions



$6\cdot x^3-24\cdot x=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Name: _____GCF Practice Period _____

Problem 7

Polynomial function: $f(x)=-9\cdot x^3+24\cdot x^2-16\cdot x$

Polynomial Equation: $-9\cdot x^3+24\cdot x^2-16\cdot x=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

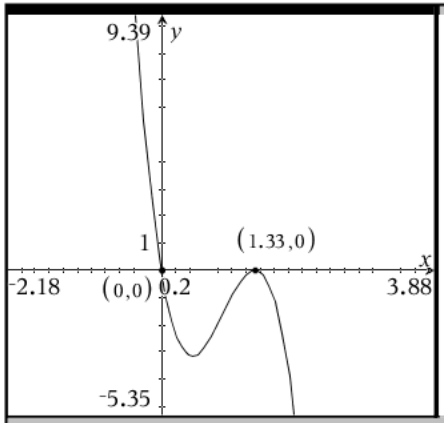
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ◯ has GCF (greatest common factor)
- ◯ is PST (perfect square trinomial)
- ◯ is DOTS (difference of two squares)
- ◯ is SOTC (sum of two cubes)
- ◯ is DOTC (difference of two cubes)
- ◯ is a multiple of one of the above
- ◯ cannot be factored
- ◯ has positive solutions
- ◯ has negative solutions
- ◯ has both positive and negative solutions
- ◯ has zero as a solution
- ◯ has imaginary solutions
- ◯ has irrational solutions



$-9\cdot x^3+24\cdot x^2-16\cdot x=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Problem 8

Polynomial function: $f(x)=6\cdot x^3+9\cdot x^2-15\cdot x$

Polynomial Equation: $6\cdot x^3+9\cdot x^2-15\cdot x=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

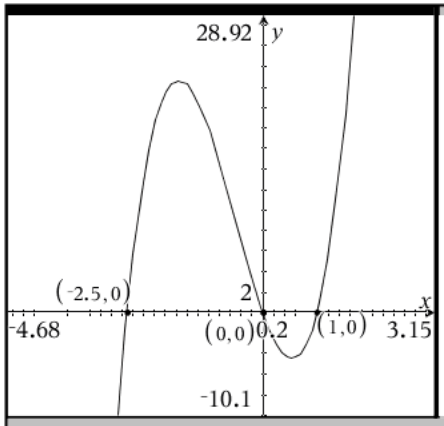
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ◯ has GCF (greatest common factor)
- ◯ is PST (perfect square trinomial)
- ◯ is DOTS (difference of two squares)
- ◯ is SOTC (sum of two cubes)
- ◯ is DOTC (difference of two cubes)
- ◯ is a multiple of one of the above
- ◯ cannot be factored
- ◯ has positive solutions
- ◯ has negative solutions
- ◯ has both positive and negative solutions
- ◯ has zero as a solution
- ◯ has imaginary solutions
- ◯ has irrational solutions



$6\cdot x^3+9\cdot x^2-15\cdot x=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Name: _____GCF Practice Period _____

Problem 9

Polynomial function: $f(x)=20\cdot x-45\cdot x^3$

Polynomial Equation: $20\cdot x-45\cdot x^3=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

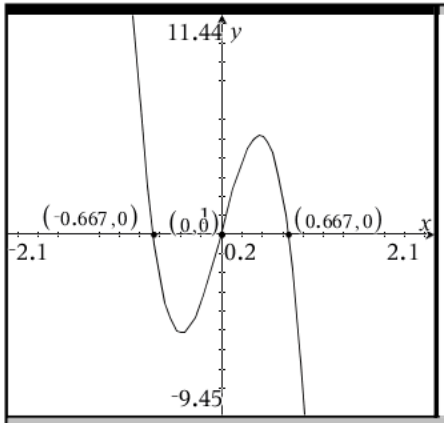
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ◯ has GCF (greatest common factor)
- ◯ is PST (perfect square trinomial)
- ◯ is DOTS (difference of two squares)
- ◯ is SOTC (sum of two cubes)
- ◯ is DOTC (difference of two cubes)
- ◯ is a multiple of one of the above
- ◯ cannot be factored
- ◯ has positive solutions
- ◯ has negative solutions
- ◯ has both positive and negative solutions
- ◯ has zero as a solution
- ◯ has imaginary solutions
- ◯ has irrational solutions



$20\cdot x-45\cdot x^3=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Problem 10

Polynomial function: $f(x)=3\cdot x^6+24\cdot x^3$

Polynomial Equation: $3\cdot x^6+24\cdot x^3=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

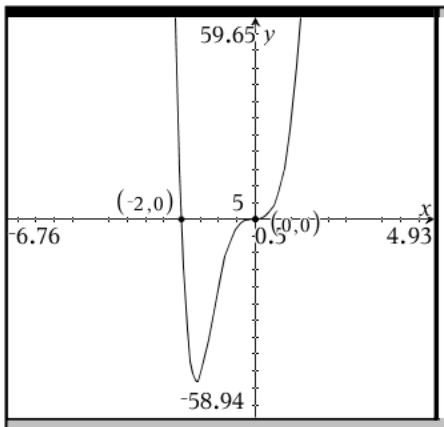
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ◯ has GCF (greatest common factor)
- ◯ is PST (perfect square trinomial)
- ◯ is DOTS (difference of two squares)
- ◯ is SOTC (sum of two cubes)
- ◯ is DOTC (difference of two cubes)
- ◯ is a multiple of one of the above
- ◯ cannot be factored
- ◯ has positive solutions
- ◯ has negative solutions
- ◯ has both positive and negative solutions
- ◯ has zero as a solution
- ◯ has imaginary solutions
- ◯ has irrational solutions



$3\cdot x^6+24\cdot x^3=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Name: _____GCF Practice Period _____

Problem 11

Polynomial function: $f(x)=3\cdot x^2-375\cdot x^5$

Polynomial Equation: $3\cdot x^2-375\cdot x^5=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

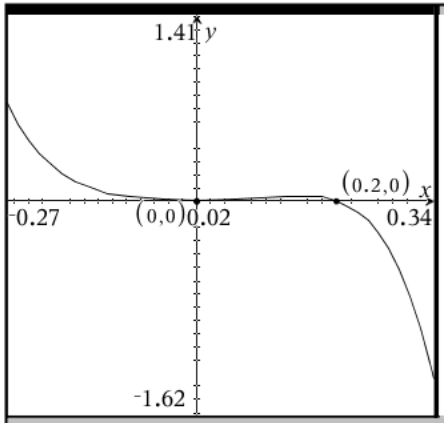
As $x \to -\infty$ $f(x) \to$_____

As $x \to +\infty$ $f(x) \to$_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ◯ has GCF (greatest common factor)
- ◯ is PST (perfect square trinomial)
- ◯ is DOTS (difference of two squares)
- ◯ is SOTC (sum of two cubes)
- ◯ is DOTC (difference of two cubes)
- ◯ is a multiple of one of the above
- ◯ cannot be factored
- ◯ has positive solutions
- ◯ has negative solutions
- ◯ has both positive and negative solutions
- ◯ has zero as a solution
- ◯ has imaginary solutions
- ◯ has irrational solutions



$3\cdot x^2-375\cdot x^5=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Problem 12

Polynomial function: $f(x)=32\cdot x^5+112\cdot x^4+98\cdot x^3$

Polynomial Equation: $32\cdot x^5+112\cdot x^4+98\cdot x^3=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

As $x \to -\infty$ $f(x) \to$_____

As $x \to +\infty$ $f(x) \to$_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ◯ has GCF (greatest common factor)
- ◯ is PST (perfect square trinomial)
- ◯ is DOTS (difference of two squares)
- ◯ is SOTC (sum of two cubes)
- ◯ is DOTC (difference of two cubes)
- ◯ is a multiple of one of the above
- ◯ cannot be factored
- ◯ has positive solutions
- ◯ has negative solutions
- ◯ has both positive and negative solutions
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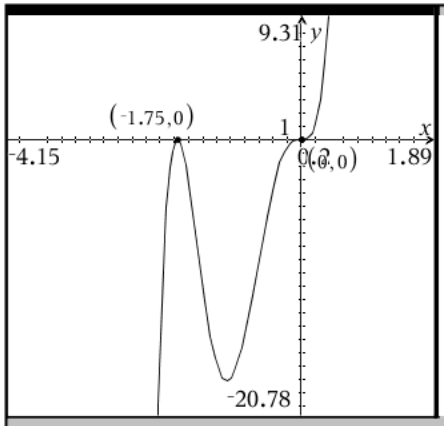

$32\cdot x^5+112\cdot x^4+98\cdot x^3=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Name: _____GCF Practice Period _____

Problem 13

Polynomial function Polynomial Equation

$f(x)=-30\cdot x^4-51\cdot x^3-9\cdot x^2$

$-30\cdot x^4-51\cdot x^3-9\cdot x^2=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ○ has GCF (greatest common factor)
- ○ is PST (perfect square trinomial)
- ○ is DOTS (difference of two squares)
- ○ is SOTC (sum of two cubes)
- ○ is DOTC (difference of two cubes)
- ○ can be factored
- ○ is a multiple of one of the above
- ○ has positive solutions
- ○ has negative solutions
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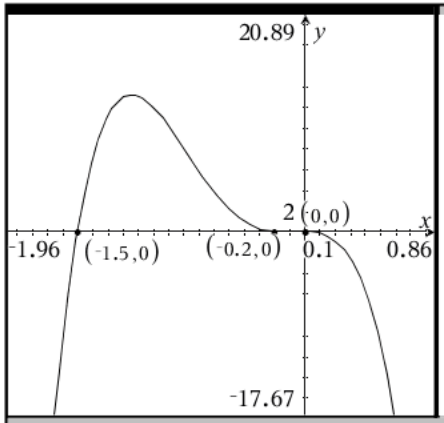
- ○ has zero as a solution
- ○ has imaginary solutions
- ○ has irrational solutions



$-30\cdot x^4-51\cdot x^3-9\cdot x^2=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Problem 14

Polynomial function Polynomial Equation

$f(x)=-12\cdot x^4+34\cdot x^3-10\cdot x^2$

$-12\cdot x^4+34\cdot x^3-10\cdot x^2=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

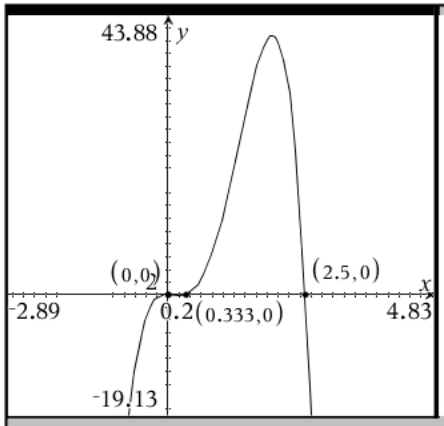
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ○ has GCF (greatest common factor)
- ○ is PST (perfect square trinomial)
- ○ is DOTS (difference of two squares)
- ○ is SOTC (sum of two cubes)
- ○ is DOTC (difference of two cubes)
- ○ is a multiple of one of the above
- ○ cannot be factored
- ○ has positive solutions
- ○ has negative solutions
- ○ has both positive and negative solutions
- ○ has zero as a solution
- ○ has imaginary solutions
- ○ has irrational solutions



$-12\cdot x^4+34\cdot x^3-10\cdot x^2=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Name: _____GCF Practice Period _____

Problem 15

Polynomial function Polynomial Equation

$f(x)=100\cdot x^3+120\cdot x^2+36\cdot x$

$100\cdot x^3+120\cdot x^2+36\cdot x=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

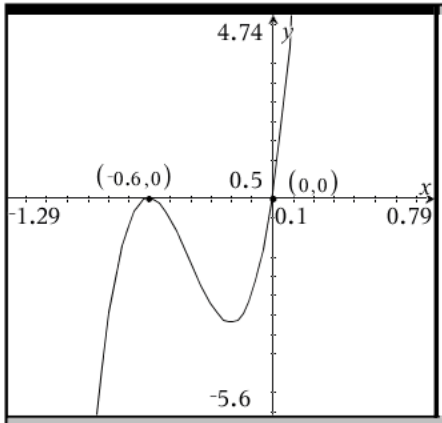
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ◯ has GCF (greatest common factor)
- ◯ is PST (perfect square trinomial)
- ◯ is DOTS (difference of two squares)
- ◯ is SOTC (sum of two cubes)
- ◯ is DOTC (difference of two cubes)
- ◯ is a multiple of one of the above
- ◯ cannot be factored
- ◯ has positive solutions
- ◯ has negative solutions
- ◯ has both positive and negative solutions
- ◯ has zero as a solution
- ◯ has imaginary solutions
- ◯ has irrational solutions



$100\cdot x^3+120\cdot x^2+36\cdot x=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____

Problem 16

Polynomial function Polynomial Equation

$f(x)=45\cdot x^3-5\cdot x^5$ $45\cdot x^3-5\cdot x^5=0$

State the number of roots this polynomial MUST have _____

state y intercept _____

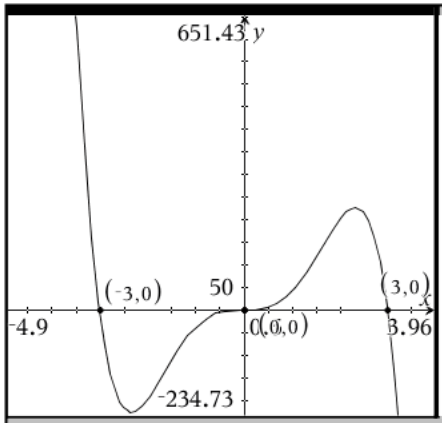
As x →−∞ f(x) →_____

As x →+∞ f(x) →_____

Completely factor and solve the given polynomial equation

Mark all that apply

- ◯ has GCF (greatest common factor)
- ◯ is PST (perfect square trinomial)
- ◯ is DOTS (difference of two squares)
- ◯ is SOTC (sum of two cubes)
- ◯ is DOTC (difference of two cubes)
- ◯ is a multiple of one of the above
- ◯ cannot be factored
- ◯ has positive solutions
- ◯ has negative solutions
- ◯ has both positive and negative solutions
- ◯ has zero as a solution
- ◯ has imaginary solutions
- ◯ has irrational solutions



$45\cdot x^3-5\cdot x^5=0$

GCF =_____

how many local extremes does this polynomial have?_____

completely factored form of the polynomial _____

Solutions _____