Algebra CC

Laurenceau

Periods 1,2,3,5, and 6

JMAP

REGENTS BY STATE

STANDARD: TOPIC

NY Algebra I Regents Exam Questions from Spring 2013

to August 2019 Sorted by State Standard: Topic

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All work must be completed within two-period

Thanks L

270 Which point is *not* on the graph represented by $y = x^2 + 3x - 6$?
1) $(-6, 12)$
2) $(-4, -2)$
3) $(2, 4)$
4) $(3, -6)$

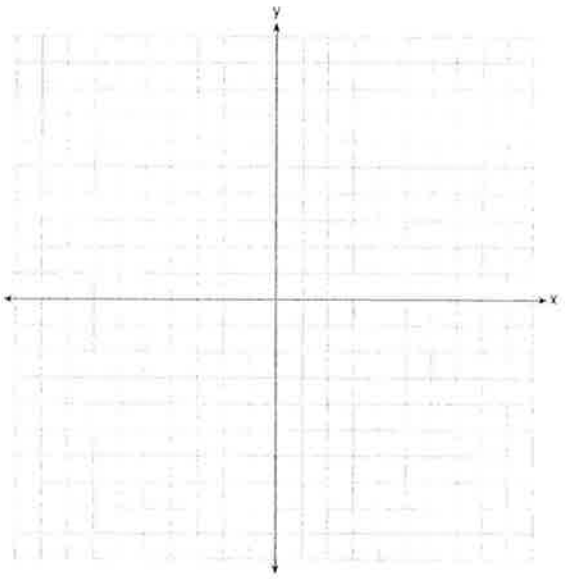
271 Which ordered pair below is *not* a solution to $f(x) = x^2 - 3x + 4$?
1) $(0, 4)$
2) $(1.5, 1.75)$
3) $(5, 14)$
4) $(-1, 6)$

272 Which point is *not* in the solution set of the equation $3y + 2 = x^2 - 5x + 17$?
1) $(-2, 10)$
2) $(-1, 7)$
3) $(2, 3)$
4) $(5, 5)$

273 Which ordered pair does *not* represent a point on the graph of $y = 3x^2 - x + 7$?
1) $(-1.5, 15.25)$
2) $(0.5, 7.25)$
3) $(1.25, 10.25)$
4) $(2.5, 23.25)$

274 Which ordered pair would *not* be a solution to $y = x^3 - x$?
1) $(-4, -60)$
2) $(-3, -24)$
3) $(-2, -6)$
4) $(-1, -2)$

275 On the set of axes below, draw the graph of the equation $y = -\frac{3}{4}x + 3$.



Is the point $(3, 2)$ a solution to the equation? Explain your answer based on the graph drawn.

A.APR.A.1: OPERATIONS WITH POLYNOMIALS

276 If $C = 2a^2 - 5$ and $D = 3 - a$, then $C - 2D$ equals
1) $2a^2 + a - 8$
2) $2a^2 - a - 8$
3) $2a^2 + 2a - 11$
4) $2a^2 - a - 11$

277 If $A = 3x^2 + 5x - 6$ and $B = -2x^2 - 6x + 7$, then $A - B$ equals
1) $-5x^2 - 11x + 13$
2) $5x^2 + 11x - 13$
3) $-5x^2 - x + 1$
4) $5x^2 - x + 1$

278 Which trinomial is equivalent to $3(x-2)^2-2(x-1)$?
1) $3x^2-2x-10$
2) $3x^2-2x-14$
3) $3x^2-14x+10$
4) $3x^2-14x+14$

279 When $(2x-3)^2$ is subtracted from $5x^2$, the result is
1) $x^2-12x-9$
2) $x^2-12x+9$
3) $x^2+12x-9$
4) $x^2+12x+9$

280 The expression $3(x^2-1)-(x^2-7x+10)$ is equivalent to
1) $2x^2-7x+7$
2) $2x^2+7x-13$
3) $2x^2-7x+9$
4) $2x^2+7x-11$

281 What is the product of $2x+3$ and $4x^2-5x+6$?
1) $8x^3-2x^2+3x+18$
2) $8x^3-2x^2-3x+18$
3) $8x^3+2x^2-3x+18$
4) $8x^3+2x^2+3x+18$

282 Which expression is equivalent to $2(3g-4)-(8g+3)$?
1) $-2g-1$
2) $-2g-5$
3) $-2g-7$
4) $-2g-11$

283 Which polynomial is twice the sum of $4x^2-x+1$ and $-6x^2+x-4$?
1) $-2x^2-3$
2) $-4x^2-3$
3) $-4x^2-6$
4) $-2x^2+x-5$

284 The expression $3(x^2+2x-3)-4(4x^2-7x+5)$ is equivalent to
1) $-13x-22x+11$
2) $-13x^2+34x-29$
3) $19x^2-22x+11$
4) $19x^2+34x-29$

285 If $y=3x^3+x^2-5$ and $z=x^2-12$, which polynomial is equivalent to $2(y+z)$?
1) $6x^3+4x^2-34$
2) $6x^3+3x^2-17$
3) $6x^3+3x^2-22$
4) $6x^3+2x^2-17$

286 Which expression is equivalent to $2(x^2-1)+3x(x-4)$?
1) $5x^2-5$
2) $5x^2-6$
3) $5x^2-12x-1$
4) $5x^2-12x-2$

287 Fred is given a rectangular piece of paper. If the length of Fred's piece of paper is represented by $2x - 6$ and the width is represented by $3x - 5$, then the paper has a total area represented by
1) $5x - 11$
2) $6x^2 - 28x + 30$
3) $10x - 22$
4) $6x^2 - 6x - 11$

288 The length, width, and height of a rectangular box are represented by $2x$, $3x + 1$, and $5x - 6$, respectively. When the volume is expressed as a polynomial in standard form, what is the coefficient of the 2nd term?
1) –13
2) 13
3) –26
4) 26

289 Express the product of $2x^2 + 7x - 10$ and $x + 5$ in standard form.

290 Subtract $5x^2 + 2x - 11$ from $3x^2 + 8x - 7$. Express the result as a trinomial.

291 If the difference $(3x^2 - 2x + 5) - (x^2 + 3x - 2)$ is multiplied by $\frac{1}{2}x^2$, what is the result, written in standard form?

292 Express in simplest form:
$(3x^2 + 4x - 8) - (-2x^2 + 4x + 2)$

293 Write the expression $5x + 4x^2(2x + 7) - 6x^2 - 9x$ as a polynomial in standard form.

294 If $C = G - 3F$, find the trinomial that represents C when $F = 2x^2 + 6x - 5$ and $G = 3x^2 + 4$.

A.SSE.A.2: FACTORING POLYNOMIALS

295 The trinomial $x^2 - 14x + 49$ can be expressed as
1) $(x - 7)^2$
2) $(x + 7)^2$
3) $(x - 7)(x + 7)$
4) $(x - 7)(x + 2)$

296 David correctly factored the expression $m^2 - 12m - 64$. Which expression did he write?
1) $(m - 8)(m - 8)$
2) $(m - 8)(m + 8)$
3) $(m - 16)(m + 4)$
4) $(m + 16)(m - 4)$

297 Which expression is *not* equivalent to $2x^2 + 10x + 12$?
1) $(2x + 4)(x + 3)$
2) $(2x + 6)(x + 2)$
3) $(2x + 3)(x + 4)$
4) $2(x + 3)(x + 2)$

298 When written in factored form, $4w^2 - 11w - 3$ is equivalent to
1) $(2w+1)(2w-3)$
2) $(2w-1)(2w+3)$
3) $(4w+1)(w-3)$
4) $(4w-1)(w+3)$

299 The area of a rectangle is represented by $3x^2 - 10x - 8$. Which expression can also be used to represent the area of the same rectangle?
1) $(3x+2)(x-4)$
2) $(3x+2)(x+4)$
3) $(3x+4)(x-2)$
4) $(3x-4)(x+2)$

300 Four expressions are shown below.

I $2(2x^2 - 2x - 60)$
II $4(x^2 - x - 30)$
III $4(x+6)(x-5)$
IV $4x(x-1) - 120$

The expression $4x^2 - 4x - 120$ is equivalent to
1) I and II, only
2) II and IV, only
3) I, II, and IV
4) II, III, and IV

301 When factored completely, $x^3 - 13x^2 - 30x$ is
1) $x(x+3)(x-10)$
2) $x(x-3)(x-10)$
3) $x(x+2)(x-15)$
4) $x(x-2)(x+15)$

302 Which expression is equivalent to $x^4 - 12x^2 + 36$?
1) $(x^2-6)(x^2-6)$
2) $(x^2+6)(x^2+6)$
3) $(6-x^2)(6+x^2)$
4) $(x^2+6)(x^2-6)$

A.SSE.A.2: FACTORING THE DIFFERENCE OF PERFECT SQUARES

303 The expression $4x^2 - 25$ is equivalent to
1) $(4x-5)(x+5)$
2) $(4x+5)(x-5)$
3) $(2x+5)(2x-5)$
4) $(2x-5)(2x-5)$

304 Which expression is equivalent to $36x^2 - 100$?
1) $4(3x-5)(3x-5)$
2) $4(3x+5)(3x-5)$
3) $2(9x-25)(9x-25)$
4) $2(9x+25)(9x-25)$

305 Which expression is equivalent to $16x^2 - 36$?
1) $4(2x-3)(2x-3)$
2) $4(2x+3)(2x-3)$
3) $(4x-6)(4x-6)$
4) $(4x+6)(4x+6)$

306 The expression $16x^2 - 81$ is equivalent to
1) $(8x-9)(8x+9)$
2) $(8x-9)(8x-9)$
3) $(4x-9)(4x+9)$
4) $(4x-9)(4x-9)$

307 The expression $49x^2 - 36$ is equivalent to
1) $(7x-6)^2$
2) $(24.5x-18)^2$
3) $(7x-6)(7x+6)$
4) $(24.5x-18)(24.5x+18)$

308 If the area of a rectangle is expressed as $x^4 - 9y^2$, then the product of the length and the width of the rectangle could be expressed as
1) $(x-3y)(x+3y)$
2) $(x^2-3y)(x^2+3y)$
3) $(x^2-3y)(x^2-3y)$
4) $(x^4+y)(x-9y)$

309 When factored completely, the expression $p^4 - 81$ is equivalent to
1) $(p^2+9)(p^2-9)$
2) $(p^2-9)(p^2-9)$
3) $(p^2+9)(p+3)(p-3)$
4) $(p+3)(p-3)(p+3)(p-3)$

310 The expression $x^4 - 16$ is equivalent to
1) $(x^2+8)(x^2-8)$
2) $(x^2-8)(x^2-8)$
3) $(x^2+4)(x^2-4)$
4) $(x^2-4)(x^2-4)$

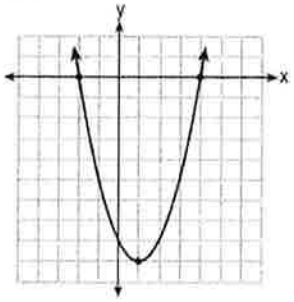
311 Which expression is equivalent to $y^4 - 100$?
1) $(y^2-10)^2$
2) $(y^2-50)^2$
3) $(y^2+10)(y^2-10)$
4) $(y^2+50)(y^2-50)$

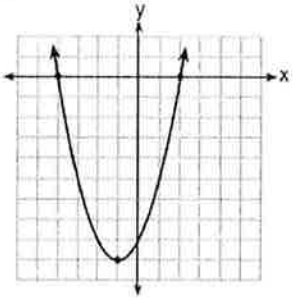
312 The expression $w^4 - 36$ is equivalent to
1) $(w^2-18)(w^2-18)$
2) $(w^2+18)(w^2-18)$
3) $(w^2-6)(w^2-6)$
4) $(w^2+6)(w^2-6)$

313 Which expression is equivalent to $16x^4 - 64$?
1) $(4x^2-8)^2$
2) $(8x^2-32)^2$
3) $(4x^2+8)(4x^2-8)$
4) $(8x^2+32)(8x^2-32)$

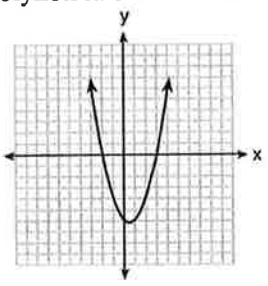
314 Factor the expression $x^4 + 6x^2 - 7$ completely.

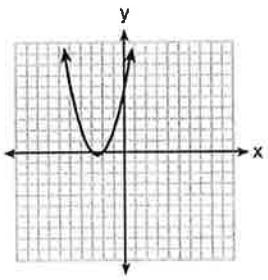
A.APR.B.3: ZEROS OF POLYNOMIALS

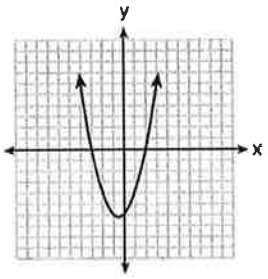
315 Which function has zeros of -4 and 2?
1) $f(x) = x^2 + 7x - 8$
2) 

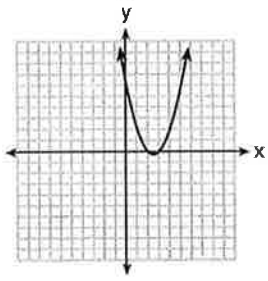
3) $g(x) = x^2 - 7x - 8$
4) 

316 The graphs below represent functions defined by polynomials. For which function are the zeros of the polynomials 2 and –3?

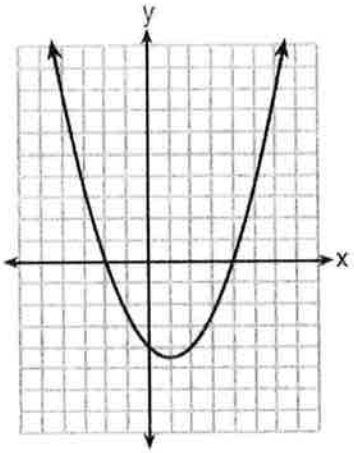
1) 

2) 

3) 

4) 

317 The graph of $y = \frac{1}{2}x^2 - x - 4$ is shown below. The points $A(-2,0)$, $B(0,-4)$, and $C(4,0)$ lie on this graph.



Which of these points can determine the zeros of the equation $y = \frac{1}{2}x^2 - x - 4$?

1) A, only
2) B, only
3) A and C, only
4) A, B, and C

318 Keith determines the zeros of the function $f(x)$ to be –6 and 5. What could be Keith's function?

1) $f(x) = (x+5)(x+6)$
2) $f(x) = (x+5)(x-6)$
3) $f(x) = (x-5)(x+6)$
4) $f(x) = (x-5)(x-6)$

319 For which function defined by a polynomial are the zeros of the polynomial –4 and –6?

1) $y = x^2 - 10x - 24$
2) $y = x^2 + 10x + 24$
3) $y = x^2 + 10x - 24$
4) $y = x^2 - 10x + 24$

320 Which polynomial function has zeros at –3, 0, and 4?
1) $f(x) = (x+3)(x^2+4)$
2) $f(x) = (x^2-3)(x-4)$
3) $f(x) = x(x+3)(x-4)$
4) $f(x) = x(x-3)(x+4)$

321 The zeros of the function $f(x) = (x+2)^2 - 25$ are
1) –2 and 5
2) –3 and 7
3) –5 and 2
4) –7 and 3

322 The zeros of the function $f(x) = x^2 - 5x - 6$ are
1) –1 and 6
2) 1 and –6
3) 2 and –3
4) –2 and 3

323 The zeros of the function $p(x) = x^2 - 2x - 24$ are
1) –8 and 3
2) –6 and 4
3) –4 and 6
4) –3 and 8

324 What are the zeros of the function $f(x) = x^2 - 13x - 30$?
1) –10 and 3
2) 10 and –3
3) –15 and 2
4) 15 and –2

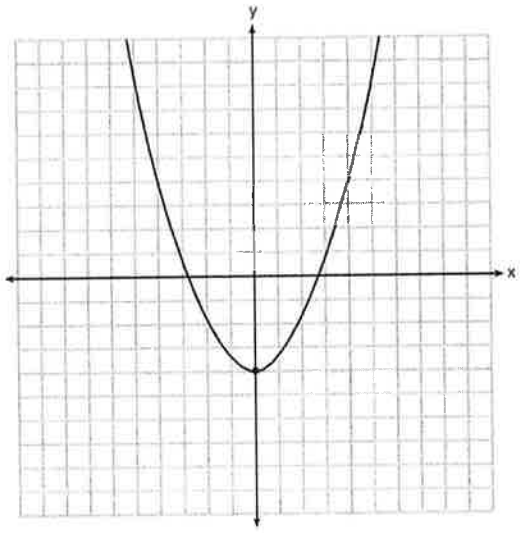
325 The zeros of the function $f(x) = 3x^2 - 3x - 6$ are
1) –1 and –2
2) 1 and –2
3) 1 and 2
4) –1 and 2

326 The zeros of the function $f(x) = 2x^2 - 4x - 6$ are
1) 3 and –1
2) 3 and 1
3) –3 and 1
4) –3 and –1

327 The zeros of the function $f(x) = 2x^3 + 12x - 10x^2$ are
1) $\{2,3\}$
2) $\{-1,6\}$
3) $\{0,2,3\}$
4) $\{0,-1,6\}$

328 If $f(x) = 2x^2 + x - 3$, which equation can be used to determine the zeros of the function?
1) $0 = (2x-3)(x+1)$
2) $0 = (2x+3)(x-1)$
3) $0 = 2x(x+1) - 3$
4) $0 = 2x(x-1) - 3(x+1)$

329 Ryker is given the graph of the function $y = \frac{1}{2}x^2 - 4$. He wants to find the zeros of the function, but is unable to read them exactly from the graph.



Find the zeros in simplest radical form.

330 Explain how to determine the zeros of $f(x) = (x+3)(x-1)(x-8)$. State the zeros of the function.

331 Find the zeros of $f(x) = (x-3)^2 - 49$, algebraically.

332 Determine all the zeros of $m(x) = x^2 - 4x + 3$, algebraically.

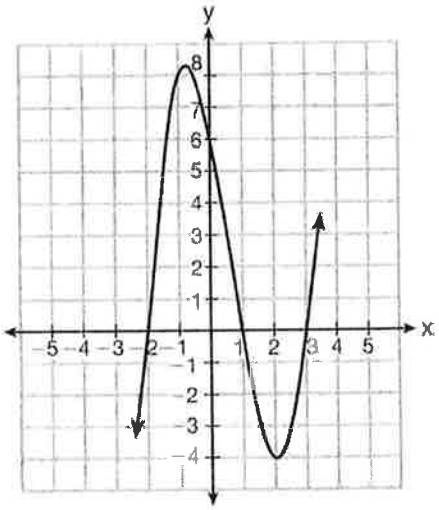
333 Determine algebraically the zeros of $f(x) = 3x^3 + 21x^2 + 36x$.

334 The function $r(x)$ is defined by the expression $x^2 + 3x - 18$. Use factoring to determine the zeros of $r(x)$. Explain what the zeros represent on the graph of $r(x)$.

A.APR.B.3: GRAPHING POLYNOMIAL FUNCTIONS

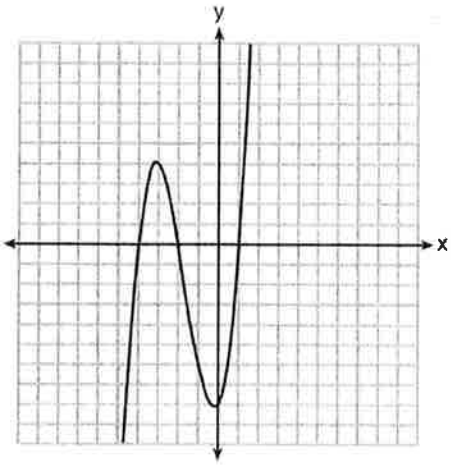
335 Which equation(s) represent the graph below?

I $y = (x+2)(x^2 - 4x - 12)$
II $y = (x-3)(x^2 + x - 2)$
III $y = (x-1)(x^2 - 5x - 6)$



1) I, only
2) II, only
3) I and II
4) II and III

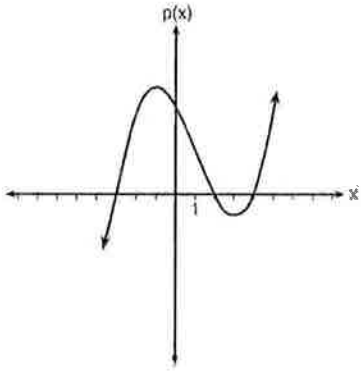
336 The graph of $f(x)$ is shown below.



Which function could represent the graph of $f(x)$?

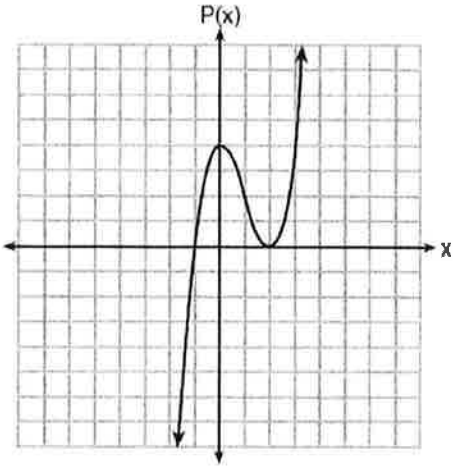
1) $f(x) = (x+2)(x^2+3x-4)$
2) $f(x) = (x-2)(x^2+3x-4)$
3) $f(x) = (x+2)(x^2+3x+4)$
4) $f(x) = (x-2)(x^2+3x+4)$

337 Based on the graph below, which expression is a possible factorization of $p(x)$?



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

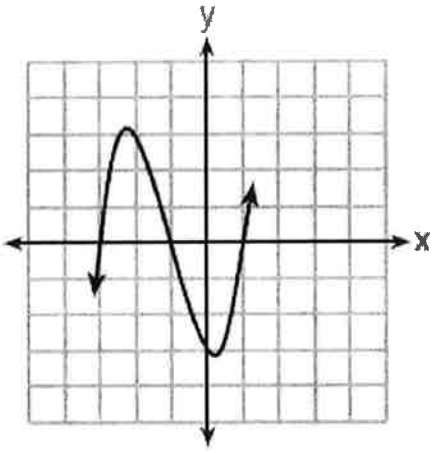
338 Wenona sketched the polynomial $P(x)$ as shown on the axes below.



Which equation could represent $P(x)$?

1) $P(x) = (x+1)(x-2)^2$
2) $P(x) = (x-1)(x+2)^2$
3) $P(x) = (x+1)(x-2)$
4) $P(x) = (x-1)(x+2)$

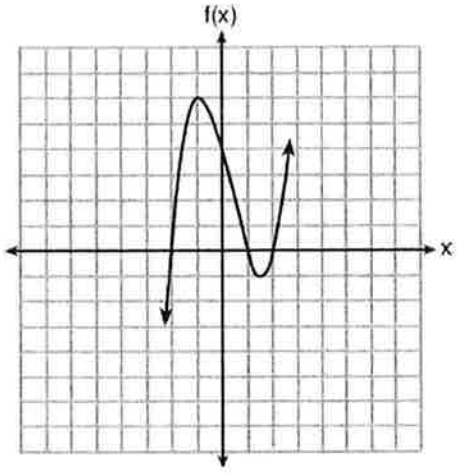
339 A cubic function is graphed on the set of axes below.



Which function could represent this graph?

1) $f(x) = (x-3)(x-1)(x+1)$
2) $g(x) = (x+3)(x+1)(x-1)$
3) $h(x) = (x-3)(x-1)(x+3)$
4) $k(x) = (x+3)(x+1)(x-3)$

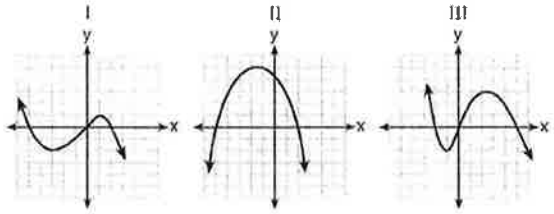
340 A polynomial function is graphed below.



Which function could represent this graph?

1) $f(x) = (x+1)(x^2+2)$
2) $f(x) = (x-1)(x^2-2)$
3) $f(x) = (x-1)(x^2-4)$
4) $f(x) = (x+1)(x^2+4)$

341 A polynomial function contains the factors x, $x-2$, and $x+5$. Which graph(s) below could represent the graph of this function?

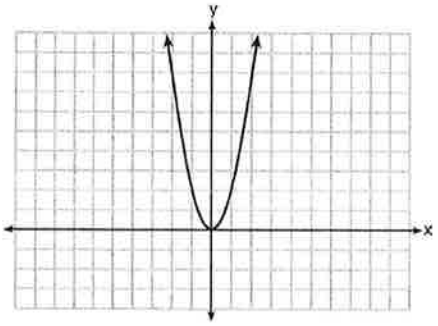


1) I, only
2) II, only
3) I and III
4) I, II, and III

F.BF.B.3: GRAPHING POLYNOMIAL FUNCTIONS

342 Given the graph of the line represented by the equation $f(x) = -2x + b$, if b is increased by 4 units, the graph of the new line would be shifted 4 units
1) right
2) up
3) left
4) down

343 The graph of the equation $y = ax^2$ is shown below.



If a is multiplied by $-\frac{1}{2}$, the graph of the new equation is
1) wider and opens downward
2) wider and opens upward
3) narrower and opens downward
4) narrower and opens upward

344 When the function $f(x) = x^2$ is multiplied by the value a, where $a > 1$, the graph of the new function, $g(x) = ax^2$
1) opens upward and is wider
2) opens upward and is narrower
3) opens downward and is wider
4) opens downward and is narrower

345 How does the graph of $f(x) = 3(x-2)^2 + 1$ compare to the graph of $g(x) = x^2$?
1) The graph of $f(x)$ is wider than the graph of $g(x)$, and its vertex is moved to the left 2 units and up 1 unit.
2) The graph of $f(x)$ is narrower than the graph of $g(x)$, and its vertex is moved to the right 2 units and up 1 unit.
3) The graph of $f(x)$ is narrower than the graph of $g(x)$, and its vertex is moved to the left 2 units and up 1 unit.
4) The graph of $f(x)$ is wider than the graph of $g(x)$, and its vertex is moved to the right 2 units and up 1 unit.

346 In the functions $f(x) = kx^2$ and $g(x) = |kx|$, k is a positive integer. If k is replaced by $\frac{1}{2}$, which statement about these new functions is true?
1) The graphs of both $f(x)$ and $g(x)$ become wider.
2) The graph of $f(x)$ becomes narrower and the graph of $g(x)$ shifts left.
3) The graphs of both $f(x)$ and $g(x)$ shift vertically.
4) The graph of $f(x)$ shifts left and the graph of $g(x)$ becomes wider.

347 If the original function $f(x) = 2x^2 - 1$ is shifted to the left 3 units to make the function $g(x)$, which expression would represent $g(x)$?
1) $2(x-3)^2 - 1$
2) $2(x+3)^2 - 1$
3) $2x^2 + 2$
4) $2x^2 - 4$