Algorithms

Quadratic Equations	Factoring	GCF and LCM	Graphs of Parabolas	Aha!
100	100	100	100	100
200	200	200	200	200
300	300	300	300	300
400	400	400	400	400

Player A

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Quadratic Equations for 100.

What is the sum of the two roots of the equation $x^2 - bx + c = 0$?

a $-b$

b c

c $-c$

d 1

e b

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Quadratic Equations for 200.

What is the product of the two roots of the equation $x^2 - bx + c = 0$?

a $-b$

b b

c c

d $-c$

e None of the above

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Quadratic Equations for 300.

How many real roots does $ax^2 - bx + c = 0$ have if the discriminant, $b^2 - 4ac$, equals zero?

a 1

b 0

c 2

d -1

e None of the above

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Quadratic Equations for 400.

What are the real roots of $x^2 - 2x + 4 = 0$?

a 2, -2

b 2

c -2

d 0

e None of the above

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Factoring for 100.

Decide which of the reasons below best explains why $(3 \cdot 4 \cdot 3 \cdot 5)^2$ is not the prime factorization of 1800

a 7 is missing

b 11 is missing

c this product is not equal to 1800

d 4 is not prime

e the last two reasons

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Factoring for 200.

Which of the following is not a factor of 24?

a 16

b 24

c 2

d 8

e 12

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Factoring for 300.

Which of the following is not a factor of 1260?

a 126

b 16

c 30

d 4

e 15

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Factoring for 400.

What is the prime factorization of 540?

a $2 \cdot 3^3 \cdot 5$

b $2^2 \cdot 3^3 \cdot 5$

c $2^2 \cdot 3^2 \cdot 5$

d $2 \cdot 3^2 \cdot 5^2$

e $2^2 \cdot 3^2 \cdot 5^2$

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GCF and LCM for 100.

What is the Greatest Common Factor of 24 and 64?

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a 192

b 12

c 8

d 64

e None of the above

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GCF and LCM for 200.

What is the Least Common Multiple of 8 and 12?

a 4

b 48

c 8

d 12

e 24

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GCF and LCM for 300.

What is the Greatest Common Factor of 128 and 432?

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a 27

b 128

c 8

d 16

e None of the above

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GCF and LCM for 400.

What is the Least Common Multiple of 48 and 64?

a 48

b 96

c 16

d 192

e None of the above

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Graphs of Parabolas for 100.

What does the graph of $-x^2 + 2x + 3$ look like?

a Open upwards, y-intercept at $y = 3$

b Open upwards, y-intercept at $y = 2$

c Open downwards, y-intercept at $y = 1$

d Open downwards, y-intercept at $y = 2$

e Open downwards, y-intercept at $y = 3$

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Graphs of Parabolas for 200.

What is the vertex of $y = (x + 2)^2 - 1$?

a (2,1)

b (2,-1)

c (1,2)

d (-2,-1)

e (-2,1)

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Graphs of Parabolas for 300.

$f(x) = x^2$. What is the equation whose graph is shifted 1 unit to the left of $f(x)$?

a $y = x^2 - 1$

b $y = x^2 - 2x$

c $y = x^2 + 2x + 1$

d $y = x^2 - 2x + 1$

e $y = x^2 + 2x - 1$

Graphs of Parabolas for 400.

$f(x) = -x^2 + 1, g(x) = 2x^2 + x - 1$. What does the graph of $(f + g)(x)$ look like?

a Open upwards, y-intercept at $y = 1$

b Open upwards, y-intercept at $y = -1$

c Open upwards, y-intercept at $y = 0$

d Open downwards, y-intercept at $y = 1$

e Open downwards, y-intercept at $y = -1$

Aha! for 100.

What is the complete factorization of x^5?

a $x^3(x+1)(x-1)$

b $x^4 \cdot x$

c $x^4 + 1$

d $x^4 + x$

e $x \cdot x \cdot x \cdot x \cdot x$

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Aha! for 200.

What is the Least Common Multiple of x and $2x$?

a $2x$

b x

c $3x$

d 1

e None of the above

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Aha! for 300.

What is the Greatest Common Factor of x and $2x$?

a x

b $2x$

c 1

d $3x$

e $2x^2$

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Aha! for 400.

What is the Greatest Common Factor of two prime numbers, p and q?

a p

b 1

c $p + q$

d q

e pq

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