Pre-Calculus 11 - VLN

Chapter 3: Quadratic Equations

Lesson 2: Solving Quadratics by Factoring

Question #1

Reference Q.10987

Factor $3x^3 + 6x^2$

Question #2

Reference Q.10988

Factor $12x^4 - 6x$

Question #3

Reference Q.10989

Factor $x^2 + x - 6$

Question #4

Reference Q.10990

Factor $x^2 - 2x - 8$

Question #5

Reference Q.10991

Factor $x^2 + 14x - 51$

Question #6

Reference Q.10996

Factor $x^2 - 3x - 28$

Question #7

Reference Q.10992

Factor $x^2 - 25$

Question #8

Reference Q.10993

Factor $6x^2 - 3x - 9$

Question #9

Reference Q.10994

Factor $12x^2 - 7x - 10$

Question #10

Reference Q.10995

Factor $30x^2 - 37x - 7$

Question #11

Reference Q.10997

$x^2 + 2x - 35$ and $x^2 - x - 20$ have one factor in common. What is this factor?

Question #12

Reference Q.10998

Find the zeros of $2x^3 - 20x^2 = 0$

Question #13

Reference Q.10999

Find the zeros of $-4x^3 + 16x = 0$

Question #14

Reference Q.11002

Find the zeros of $x^2 + 2x - 48 = 0$

Question #15

Reference Q.11005

Find the zeros of $x^2 + 2x = 8x - 8$

Question #16

Reference Q.11000

Solve for x

$4x^3 - 60x = 0$

Question #17

Reference Q.11001

Solve for x

$2x^3 - 43x = 0$

Question #18

Reference Q.11003

Solve for x

$3x^4 - 12x^3 - 36x^2 = 0$

Question #19

Reference Q.11004

Find the roots of $8z^2 + 2z - 10$.

Question #20

Reference Q.11006

What are the roots of $27x^2 - 8x = 4x + 4$

Question #21

Reference Q.11007

Solve for x

$x^3 - x^2 = x - x^2$

Question #22

Reference Q.45605

Write a quadratic equation that has roots of $x = -2$ and 4.

Question #23

Reference Q.45608

Write a quadratic equation that has zeros of $x = 5$ and -1.

Question #24

Reference Q.45611

Write a quadratic equation that has roots of $x = -\frac{1}{4}, \frac{5}{6}$

Question #25

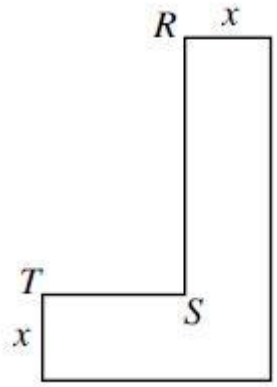
Reference Q.13933

The complete solution to the equation $x(x - 1) = 2$ is

A. $x = 0$ and $x = 1$
B. $x = 2$ and $x = 3$
C. $x = -1$ and $x = 2$
D. $x = -2$ and $x = 1$

Question #26

Reference Q.13930



The diagram shows a piece of wood of uniform width x cm.
$RS = 10$ cm. and $ST = 7$ cm.

a. Find the area of the piece of wood in terms of x.

b. Find the value of x if the area is $60\ \text{cm}^2$

Question #27

Reference Q.13932

The height of a triangle is 8 mm more than the base. The area is $172.5\ \text{mm}^2$.

a. Write a polynomial equation to model this information.

b. Determine the height of the triangle.

Question #28

Reference Q.13926

Solve the equation.

a. $(x-2)(x+7)=0$

b. $(3x-2)(2x+5)=0$

c. $5x(10-x)=0$

d. $x^2+2x=0$

e. $x^2-121=0$

f. $9x^2-100=0$

g. $36x^2=25$

h. $9x-4x^2=0$

i. $4(49-x^2)=0$

Question #29

Reference Q.13927

Solve the equation.

a. $x^2-3x+2=0$

b. $x^2+13x+30=0$

c. $x^2+2x-15=0$

d. $3x^2-10x+3=0$

e. $2x^2+3x-35=0$

f. $15-2x-x^2=0$

Question #30

Reference Q.13928

Solve the equation.

a. $2x^2+5x=7$

b. $6x^2=7x+3$

c. $x(x+4)=32$

d. $(x-3)(2x+3)=5$

e. $(2x-3)^2=1$

f. $(x+1)(x-1)=5(x+1)$

Question #31

Reference Q.13929

Solve the equation.

a. $6a^2-7-19a=0$

b. $21-8k-2k^2=2k^2$

Question #32

Reference Q.11129

(Try this!) Suppose a is some constant. Solve for x: $0=x^2+2ax+a^2$.

Question #33

Reference Q.11130

(Try this!) Suppose a is some constant. Solve for x:
$0=x^3-2ax^2+a^2x$.

Question #34

Reference Q.11131

(Try this!) Suppose a is some constant. Solve for x: $0=x^2-4a$

Question #35

Reference Q.11132

(Try this!) Suppose a is some constant. Solve for x:
$0=ax^2-(3a+2)x+6$.

Question #36

Reference Q.11008

A hobbyist's helicopter is flying around a mountain, with a treeline represented by the x-axis. The helicopter's flight path is given by the quadratic equation: $f(x)=x^2+4x-12$. Factor this equation to determine the points at which the helicopter would hit the tree-line (i.e. where $f(x)=0$).

Question #37

Reference Q.11009

The distance from a boomerang and the tree it is flying around is given by the quadratic equation:
$d=3t^2+11t-20$. Factor this equation to determine the time(s) at which the boomerang will hit the tree (i.e. $d=0$).

Question #38

Reference Q.11010

A slide at a waterpark has a section whose height is designed similar to the graph of the quadratic equation $y = 12x^2 - x - 20$. Factor the equation to help determine the roots, and indicate what those roots represent physically.

Question #39

Reference Q.11011

The height of an English textbook that has been thrown (yes, this happened again...) is given by the equation: $h = t^3 - 2t$, where t is time, in seconds. How long after it is thrown will the textbook hit the ground (finally)?

Question #40

Reference Q.13934

The equation $24x^2 + 2x = 15.$ has solutions $x = a$ and $x = -b,$ where a and b are positive rational numbers. The value of $b,$ to the nearest hundredth, is _____.

Question #41

Reference Q.13935

The sum of the first n natural numbers is given by the formula

$$S = \frac{1}{2}n(n+1).$$

If the first k natural numbers have a sum of $496,$ the value of k is ___.