TALIS Video Study

Posttest Final

Draft 4

September 8, 2017

Question 1 QuestionBA 1

Solve: $(x-2)(x-3)=0$

A. $x=2$ and $x=3$

B. $x=4$ and $x=6$

C. $x=-4$ and $x=-6$

D. $x=-2$ and $x=-3$

Question 2 QuestionBB 2

Find a positive integer x so that the square of x minus twice x is 35.

A. 4

B. 5

C. 6

D. 7

Question 3 QuestionBB 3

Solve: $x^2 - 2x - 8 = 0$.

A. $x = 2$ and $x = -4$

B. $x = -2$ and $x = 4$

C. $x = -2$ and $x = 6$

D. $x = 6$ and $x = -8$

Question 4 QuestionBA 4

The quadratic equation $x^2 - 2x - 3 = 0$ can be transformed into $(x-1)^2 = a.$

What is the value of a ?

A. 5

B. 4

C. 3

D. 2

Question 5 QuestionBB 6

$$3x^2 = 27$$

Which of the following are the solutions to the equation shown?

A. $x = 3$ only

B. $x = 3$ and $x = -3$

C. $x = 9$ only

D. $x = 9$ and $x = -9$

Question 6 QuestionBA 5

What are the solutions of the quadratic equation $(x+1)^2 = 4$?

A. $x = 3$ and $x = 5$

B. $x = 3$ and $x = 1$

C. $x = -3$ and $x = -1$

D. $x = -3$ and $x = 1$

Question 7 QuestionBB 7

Solve: $(x-7)^2 - 8 = 0$

A. $x = -7 + 4\sqrt{2}$ and $x = -7 - 4\sqrt{2}$

B. $x = 7 + 2\sqrt{2}$ and $x = 7 - 2\sqrt{2}$

C. $x = 9$ and $x = 1$

D. $x = 7$ and $x = 3$

Question 8 QuestionBA 8

The equation $x^2 - 10x + 1 = 0$ has the same roots as which of the following equations?

A. $x^2 + 10x - 1 = 0$

B. $x^2 - 25x - 10 = 0$

C. $(x-5)^2 - 24 = 0$

D. $(x-10)^2 - 1 = 0$

Question 9 QuestionBA 9

$$x = \frac{-3 \pm \sqrt{69}}{2}$$

Which of the following quadratic equations has the solutions shown above?

A. $x^2 + 3x - 15 = 0$

B. $x^2 - 3x + 69 = 0$

C. $x^2 - 9x + 60 = 0$

D. $x^2 + 9x + 18 = 0$

Question 10 QuestionBA 10

Solve: $4x^2 - 12x + 9 = 0$

A. $x = \dfrac{3}{2}$ only

B. $x = 5.12$ and $x = 0.89$

C. $x = 3$ only

D. There are no solutions.

Question 11 QuestionBB 10

A rectangular picture with an area of 875 square centimeters has a height that is 10 centimeters more than the width. What is the width of the picture?

A. 15 centimeters

B. 25 centimeters

C. 40 centimeters

D. 50 centimeters

Question 12 QuestionBA 11

For which of the following values of a, does the equation $x^2 + ax + 9 = 0$, have only one distinct solution?

A. 2

B. 3

C. 6

D. 12

Question 13 QuestionBB 14

Which of the following equations has solutions $x = -2$ and $x = 2$?

A. $x^2 - 4 = 0$

B. $x^2 + 4 = 0$

C. $(x - 2)^2 = 0$

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

Question 14 QuestionBA 13

Consider the equation $ax^2 + bx + c = 0.$ If $a = 1,$ $b = -11a,$ and $c = -2b + 6,$ which of the following are solutions of the equation?

A. $x = 2$ and $x = 9$

B. $x = 4$ and $x = 7$

C. $x = 7$ and $x = 11$

D. $x = 11$ and $x = 28$

Question 15 QuestionBB 15

Completing the square of the equation $x^2 - 6x + 7 = 0$ results in

A. $(x-6)^2 + 7 = 0$

B. $(x-3)^2 - 2 = 0$

C. $(x-6)^2 + 10 = 0$

D. $(x-3)^2 + 16 = 0$

Question 16 QuestionBA 14

Solve: $x^2 + 5x - 14 = 0$

A. $x = -2$ and $x = 7$

B. $x = -7$ and $x = 2$

C. $x = -7$ and $x = -2$

D. $x = 2$ and $x = 7$

Question 17 QuestionBB 16

If the sum of twice x and one, times the sum of x and 2 is 4, what is the value of x ?

A. $-\dfrac{3}{2}+\dfrac{\sqrt{39}}{2}$ and $-\dfrac{3}{2}-\dfrac{\sqrt{39}}{2}$

B. $-\dfrac{3}{2}-\dfrac{\sqrt{32}}{2}$ only

C. $-\dfrac{5}{4}+\dfrac{\sqrt{41}}{4}$ and $-\dfrac{5}{4}-\dfrac{\sqrt{41}}{4}$

D. $-\dfrac{5}{4}-\dfrac{\sqrt{41}}{4}$ only

Question 18 QuestionBB 18

$$x^2 - x - 20 = (x+a)(x+b)$$

If $a < b$, what are the values of a and b ?

A. $a = -20$ and $b = -1$

B. $a = -20$ and $b = 0$

C. $a = -5$ and $b = 4$

D. $a = -4$ and $b = 5$
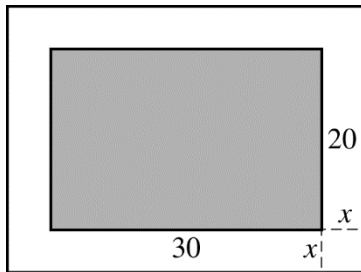
Question 19 QuestionBA 20

A rectangle has length $x+4$, width $x+3$, and area 72. What is the perimeter of the rectangle?

A. 72

B. 34

C. 18

D. 11

Question 20 QuestionBA 25

A rectangular picture frame has a border of width x centimeters and inner dimensions of 30 centimeters and 20 centimeters as shown. If the area of the shaded rectangle is half the area of the entire region enclosed by the frame, what is the value of x ?

A. 10 centimeters

B. 8 centimeters

C. 6 centimeters

D. 5 centimeters

Question 21 QuestionBA 21

The product of two consecutive integers is 42. If n is one of the integers, which of the following equations can we use to find n ?
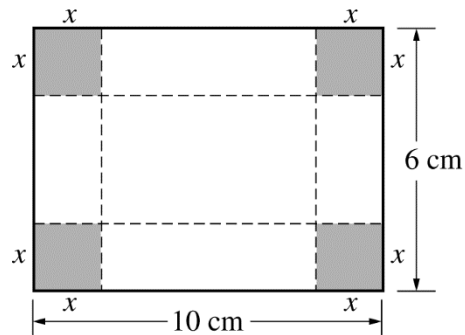
A. $n^2 = 42$

B. $n^2 - n + 42 = 0$

C. $n^2 + n = 0$

D. $n^2 + n - 42 = 0$
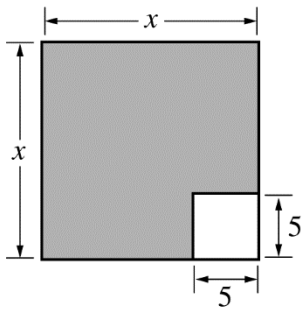
Question 22 QuestionBA 22

A rectangular piece of cardboard with dimensions 10 centimeters by 6 centimeters has squares of side
x centimeters cut from each corner, as shown in the figure. The piece of cardboard is folded along the dotted lines to create a box without a top. Which of the following equations can be used to find the volume, V, in cubic centimeters, of the box?

A. $V = x(6-x)(10-x)$

B. $V = x(6-2x)(10-2x)$

C. $V = 2x(x-6)(x-10)$

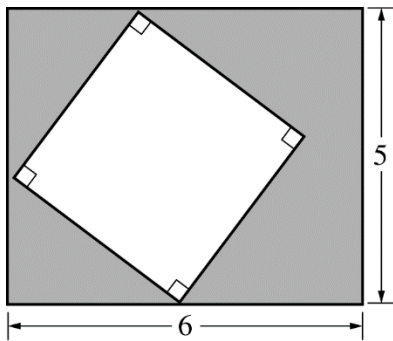D. $V = 2x(2x-6)(2x-10)$

Question 23 QuestionBA 24

What is the value of x if the shaded area in the figure is 200 ?
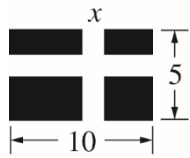
A.   5

B.   14

C.   15

D.   25

Question 24 QuestionBA 30

A rectangle is 6 units long and 5 units wide, as shown above. A portion of the rectangle is covered by a square that lies entirely within the rectangle. An area of 14 square units of the rectangle is left uncovered by the square. What is the length of a side of the square?

A.   3

B. $\sqrt{14}$

C.   4

D.   16

Question 25 QuestionBA 23

There is a rectangular field 5 meters long and 10 meters wide, as shown above. There are two roads with the same width, x, through the field, perpendicular to each other. The area of the shaded region is 36 square meters. What is the value of x ?

A. 1 meter

B. 2 meters

C. 4 meters

D. 5 meters

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Answer Key

POSTTEST Final Form

Item sequence	Item sequence	Code	KEY	PURE/ CONTEXT
1	BA01	1.a.i	A	Pure
2	BB02	1.a.i	D	Pure
3	BB03	1.a.i	B	Pure
4	BA04	1.b.i	B	Pure
5	BB06	1.b.ii	B	Pure
6	BA05	1.b.ii	D	Pure
7	BB07	1.b.iii	B	Pure
8	BA08	1.b.iv	C	Pure
9	BA09	1.c.i	A	Pure
10	BA10	1.c.v	A	Pure
11	BB10	1.c.iii	B	Context
12	BA11	1.c.v	C	Pure
13	BB14	1.d.i	A	Pure
14	BA13	1.d.i	B	Pure
15	BB15	1.d.iii	B	Pure
16	BA14	1.d.ii	B	Pure
17	BB16	1.d.iv	C	Pure
18	BB18	1.a.i	C	Pure
19	BA20	1.c.i	B	Context
20	BA25	1.d.i	D	Context
21	BA21	1.c.ii	D	Context
22	BA22	1.c.ii	B	Context
23	BA24	1.d.i	C	Context
24	BA30	1.e.i	C	Context
25	BB23	1.c.ii	A	Context