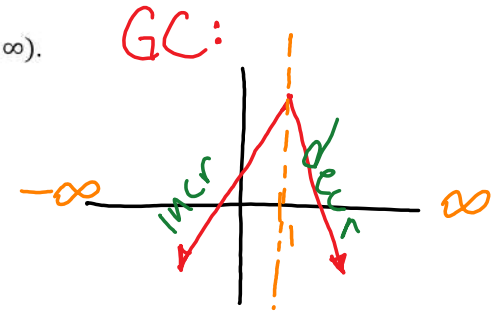
H, K

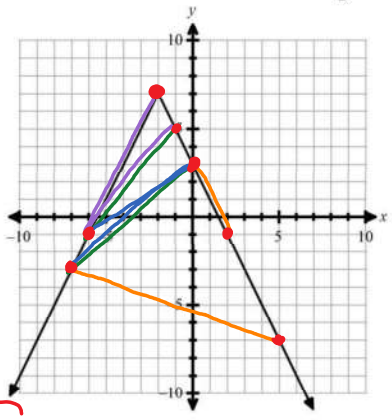
7. Which of the following statements are true for the function $(x) = -2|x - 1| + 4$? Select all that apply.

F. $f(x)$ is decreasing on the intervals $(-\infty, 1)$ and $(3, \infty)$.
G. $f(x)$ is decreasing on the interval $(-\infty, \infty)$.
H. $f(x)$ is decreasing on the interval $(1, \infty)$.
I. $f(x)$ is increasing on the interval $(-1, 3)$.
J. $f(x)$ is increasing on the interval $(-\infty, \infty)$.
K. $f(x)$ is increasing on the interval $(-\infty, 1)$.



B

8. The function, $f(x)$, is graphed below. Which of the following statements is correct?

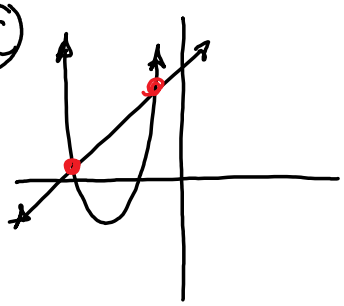


slope

A. The average rate of change over the interval $[-7, 5]$ is the same as the interval $[0, 2]$.
B. The average rate of change over the interval $[-6, -1]$ is greater than the interval $[-7, 0]$.
C. The average rate of change over the interval $[-7, 0]$ is the same as the interval $[-6, 0]$.
D. The average rate of change over the interval $[-6, -1]$ is greater than the interval $[-6, -2]$.

A 9. Solve $(x+4)^2 - 3 = -|x-1| + 8$. (y_1 = left side, y_2 = right side)

GC



A. $x = -6$ and $x = -1$

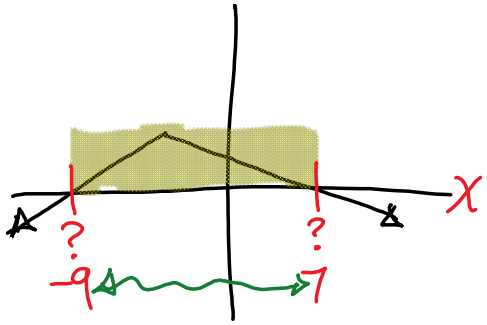
B. $x = 1$ and $x = 6$

C. $x = 1$

D. $x = -6$

B 10. Solve $-\frac{1}{2}|x+1| + 4 \geq 0$. positive (above x-axis)

GC



root (x-int)

A. $-3 \leq x \leq 1$

B. $-9 \leq x \leq 7$

C. $x \leq -3$ or $x \geq 1$

D. $x \leq -9$ or $x \geq 7$

C 11. Solve the following system for z:

$$\begin{cases} x + 2y - z = 5 \\ -3x - 2y - 3z = 11 \\ 4x + 4y + 5z = -18 \end{cases}$$

GC

CASIO
EQUA → SIMULT → 3

A. $z = 0$

B. $z = -2$

C. $z = -4$

D. $z = 8$

TI

$AX = B$

$X = A^{-1}B$

$$A = \begin{bmatrix} 1 & 2 & -1 \\ -3 & -2 & -3 \\ 4 & 4 & 5 \end{bmatrix}$$

$$B = \begin{bmatrix} 5 \\ 11 \\ -18 \end{bmatrix}$$

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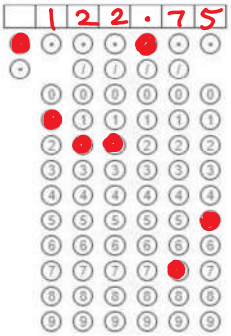
12. Kwon is planning a vacation and finds the following packages offered by a vacation booking company.

Theme Park Ticket and Transportation	$95.25
Theme Park Ticket and Hotel	$147.00
Theme Park Ticket, Transportation, and Hotel	$182.50

Assuming the price of each option is the same as purchasing each item separately, how much will Kwon expect to pay for booking the hotel and transportation? Bubble your answer in the grid below.



$x+y=95.25$
$x+z=147$
$x+y+z=182.50$

GC

$y+z$?

35.5
$+\ 87.25$
122.75

D **13.** The matrix below represents the prices of backpacks and binders a company has in stock. The backpacks and binders are offered in three different colors: red, yellow, and purple. If the company has a 40% off sale, then which matrix shows the price of the item after the discount?

0.60

scalar mult $0.40\begin{bmatrix} \text{blah} \end{bmatrix}$

$$\begin{array}{r} \\ \text{Backpack} \\ \text{Binder} \end{array}\begin{array}{c} \begin{array}{ccc} \text{R} & \text{Y} & \text{P} \end{array} \\ \begin{bmatrix} 35.50 & 27.00 & 45.25 \\ 2.50 & 1.75 & 3.00 \end{bmatrix} \end{array}$$

A. $\begin{bmatrix} 35.10 & 26.60 & 44.85 \\ 2.10 & 1.35 & 2.60 \end{bmatrix}$

B. $\begin{bmatrix} 34.90 & 36.40 & 44.65 \\ 1.9 & 1.05 & 2.40 \end{bmatrix}$

C. $\begin{bmatrix} 14.20 & 10.80 & 18.10 \\ 1.00 & 0.70 & 1.20 \end{bmatrix}$

D. $\begin{bmatrix} 21.30 & 16.20 & 27.15 \\ 1.50 & 1.05 & 1.80 \end{bmatrix}$

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A **14.** Which matrix is the additive inverse of $A = \begin{bmatrix} -5 & 3 \\ -10 & 8 \\ 25 & 1 \end{bmatrix}$

opposite

A. $\begin{bmatrix} 5 & -3 \\ 10 & -8 \\ -25 & -1 \end{bmatrix}$

B. $\begin{bmatrix} -5 & -10 & 25 \\ 3 & 8 & 1 \end{bmatrix}$

C. $\begin{bmatrix} 3 & -5 \\ 8 & -10 \\ 1 & 25 \end{bmatrix}$

D. $\begin{bmatrix} 3 & 8 & 1 \\ -5 & -10 & 25 \end{bmatrix}$

15. A segment with endpoints $D(-4, 5)$ and $E(-1, 7)$ can be represented by the matrix $\begin{bmatrix} -4 & -1 \\ 5 & 7 \end{bmatrix}$. $\overline{DE}$ is translated using the matrix operation $\begin{bmatrix} -4 & -1 \\ 5 & 7 \end{bmatrix} + \begin{bmatrix} -3 & -3 \\ -2 & -2 \end{bmatrix}$. Which of the following statements describes how $\overline{DE}$ is translated?

A. $\overline{DE}$ is translated to the left 2 units and down 3 units.

B. $\overline{DE}$ is translated to the left 3 units and down 2 units.

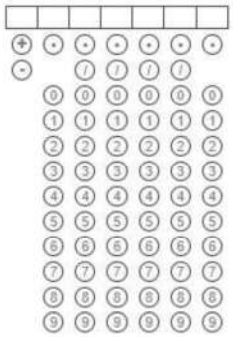
C. $\overline{DE}$ is translated to the right 2 units and up 3 units.

D. $\overline{DE}$ is translated to the right 3 units and up 2 units.

16. Find the value of y below:

$$\begin{bmatrix} 15 & 12 \\ 5x & 0 \end{bmatrix} + \begin{bmatrix} 13 & 9 \\ x & 2y+4 \end{bmatrix} = \begin{bmatrix} 28 & 21 \\ 36 & 3y+6 \end{bmatrix}$$

Round your answer to the nearest tenth if needed. Bubble your answer in the grid below.



Algebra 2 Honors Semester 1
Instructional Materials 2021-22 Answers

Topic 1 Linear Functions & Systems			Topic 10 Matrices		
1.	C	HSF.IF.B.5	**13.**	D	HSN.VM.C.7(+)
2.	D	HSF.IF.B.5	**14.**	A	HSN.VM.C.8(+)
3.	A	HSF.IF.C.7b	**15.**	B	HSN.VM.C.12(+)
4.	C	HSF.IF.B.5	**16.**	−2	HSN.VM.C.8(+)
5.	B	HSF.LE.A.2 HSF.IF.C.7b	**17.**	D	HSN.VM.C.8(+)
6.	A	HSF.BF.B.3	**18.**	F, H, I, J	HSN.VM.C.9(+)
7.	K, H	HSF.IF.B.4	**19.**	C	HSN.VM.C.12(+)
8.	B	HSF.IF.B.6	**20.**	C	HSN.VM.C.10(+)
9.	A	HSA.REI.D.11	**21.**	−99	HSN.VM.10(+)
10.	B	HSA.REI.D.11	**22.**	A	HSN.VM.10(+)
11.	C	HSA.REI.C.6	**23.**	C	HSN.VM.10(+)
12.	122.75	HSA.REI.C.6	**24.**	C	HSN.VM.C.12(+)
			25.	D	HSA.REI.C.9
			26.	F, J	HSA.REI.C.9
			27.	B	HSA.REI.C.9

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Algebra 2 Honors Semester 1
Instructional Materials 2021-22 Answers

Topic 2 Quadratic Functions & Equations			Topic 3 Polynomial Functions		
28.	B	HSF.IF.B.4	**49.**	A	HSF.IF.B.4
29.	D	HSF.IF.B.4	**50.**	B	HSF.IF.B.4
30.	C	HSA.CED.A.2	**51.**	H, J	HSF.IF.B.4
31.	H, I, L, M	HSF.IF.B.4	**52.**	C	HSA.APR.A.1
32.	C	HSF.BF.B.3	**53.**	A	HSA.APR.A.1
33.	B	HSA.CED.A.2	**54.**	B	HSF.BF.A.1.b
34.	A	HSA.CED.A.2	**55.**	C	HSA.SSE.A.2 HSN.CN.C.8
35.	A	HSF.IF.B.4	**56.**	C	HSA.SSE.A.2
36.	D	HSA.CED.A.2	**57.**	A	HSA.APR.C.4
37.	B	HSN.CN.A.2	**58.**	15	HSA.APR.B.2
38.	D	HSN.CN.A.2	**59.**	D	HSA.APR.D.6
39.	D	HSN.CN.A.3(+)	**60.**	B	HSA.APR.B.2 HSF.IF.B.4
40.	B	HSA.SSE.A.3b	**61.**	C	HSA.APR.B.3 HSF.IF.C.7.c
41.	−14	HSA.REI.B.4a	**62.**	C	HSN.CN.C.7 HSA.APR.B.3
42.	C	HSA.REI.B.4b	**63.**	D	HSF.IF.C.7
43.	B	HSA.REI.B.4b HSN.CN.C.7	**64.**	B	HSN.CN.C.8(+) HSN.CN.C.9(+) HSA.APR.B.2 HSA.APR.B.3
44.	C	HSA.CED.A.2 HSN.CN.C.7	**65.**	A	HSN.CN.C.8(+) HSN.CN.C.9(+) HSA.APR.B.2 HSA.APR.B.3
45.	D	HSA.CED.A.2 HSA.REI.B.4	**66.**	C	HSN.CN.C.9(+)
46.	A	HSA.RE.IC.7	**67.**	D	HSF.BF.B.3
47.	52.5	HSA.REI.C.7 HSA.REI.D.11	**68.**	D	HSF.IF.B.4 HSF.BF.B.3
48.	B	HSA.REI.D.11 HSA.REI.D.12			

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