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

opposite

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

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

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

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

B **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?

x
y
left & down

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.

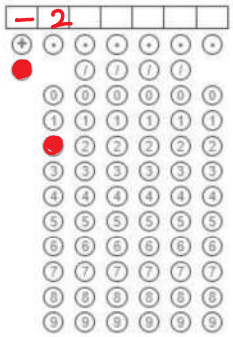
C. $\overline{DE}$ is translated to the right 2 units and up 3 units.

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

−2 **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.



$0 + 2y + 4 = 3y + 6$
$-2y - 6 \quad -2y - 6$
$-2 = y$

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D 17. Find the product of ***SR***, given $R = \begin{bmatrix} 12 & 3 \\ -4 & -2 \end{bmatrix}$ and $S = \begin{bmatrix} -7 & 15 \\ 11 & 5 \end{bmatrix}$.

GC

A. $\begin{bmatrix} -39 & -2 \\ 147 & -54 \end{bmatrix}$

B. $\begin{bmatrix} -51 & 225 \\ 6 & -70 \end{bmatrix}$

C. $\begin{bmatrix} -84 & 45 \\ -44 & -10 \end{bmatrix}$

D. $\begin{bmatrix} -144 & -51 \\ 112 & 23 \end{bmatrix}$

F, H, I, J 18. Three matrices are given below.

$X = \begin{bmatrix} -2 & 0 \\ 5 & 7 \end{bmatrix}$ $Y = \begin{bmatrix} -1 & 3 \\ -5 & 8 \end{bmatrix}$ $Z = \begin{bmatrix} 11 & 3 \\ 5 & -7 \end{bmatrix}$

Which of the following statements are true? Select all that apply.

F. $(X + Y)Z = XZ + YZ$ Distrib Prop

G. $XY = YX$ Commutative Prop of Mult :(

H. $-5(XY) = (-5X)Y$ Assoc Prop

I. $X(Y + Z) = XY + XZ$ Distrib Prop

J. $X + Y = Y + X$ Commutative Prop of Add

K. $Y - Z = Z - Y$?

C 19. Three matrices are described below:

- A is any 2×2 matrix $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$
- Z is a 2×2 zero matrix $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$
- I is a 2×2 identity matrix $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

Which of the following equations is true?

A. $AI = Z$

B. $AZ = I$

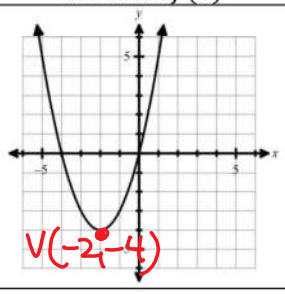
C. $A + Z = A$:)

D. $A + I = A$

AI=A :)

B

28. Compare the two functions represented below. Determine which of the following statements is true.

Function $f(x)$	Function $g(x)$
	$g(x) = -(x-8)^2 - 4$

a(x-h)+k

V: 8, -4

A. The functions have the same vertex.

B. The minimum value of $f(x)$ is the same as the maximum value of $g(x)$. -4 -4

C. The functions have the same axis of symmetry. $x=-2$ vs. $x=8$

D. The minimum value of $f(x)$ is less than the maximum value of $g(x)$.

D

29. Given $(x) = 4\left(x - \frac{2}{7}\right)^2 + \frac{1}{9}$, identify the domain and range of the function.

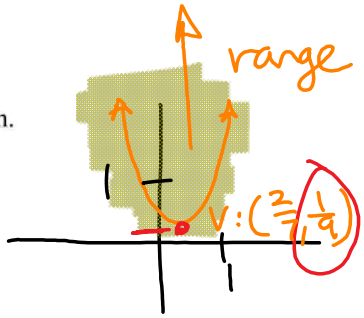
V: $(\frac{2}{7}, \frac{1}{9})$

A. Domain: $(-\infty, +\infty)$
Range: $\left(-\infty, -\frac{2}{7}\right)$

B. Domain: $[-\infty, +\infty]$
Range: $\left[\infty, -\frac{2}{7}\right]$

C. Domain: $(-\infty, +\infty)$
Range: $(\infty, 4)$

D. Domain: $(-\infty, +\infty)$
Range: $\left[\frac{1}{9}, \infty\right)$



30. Which of the following is the quadratic equation for a parabola with a vertex of $(-8, 2)$ going through the point $(-13, 12)$?

A. $y = -\frac{10}{441}(x+8)^2 + 2$

B. $y = -\frac{2}{5}(x-8)^2 + 2$

C. $y = \frac{2}{5}(x+8)^2 + 2$

D. $y = \frac{10}{441}(x-8)^2 + 2$

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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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