

ALGEBRA 1 SEMESTER 1 INSTRUCTIONAL MATERIALS

HS Courses: #2201 Algebra 1 S1 and #7769 Foundations in Algebra 1 S1
MS Courses: #218 Algebra 1, #217A VMS ALG 1 S1, and #776 ACCEL Algebra 1

2021-2022

F, H, I

1. Which of the following could be the first step in solving $\frac{1}{2}(x + 3) = \frac{2}{3}$?

Select all that apply

F. Distribute $\frac{1}{2}$ to $(x + 3)$ on the left side of the equation

G. Subtract 3 from both sides of the equation

H. Multiply by the reciprocal of $\frac{1}{2}$ on both sides of the equation $\frac{2}{1} \cdot \frac{1}{2}(x+3) = \frac{2}{3} \cdot \frac{2}{1}$

I. Divide by $\frac{1}{2}$ on both sides of the equation

J. Distribute $\frac{2}{3}$ to $\frac{1}{2}(x + 3)$ on the left side of the equation

PE
M,D
AS
↑
SOLVE

same }

A

2. A person took a bicycle ride.

- They rode for 1.5 hours at a rate of r miles per hour.
- Then they increased that rate by 2 miles per hour and rode for 2.5 more hours.
- They rode a total of 41 miles.

Which equation can be used to determine the value of r ?

A. $1.5r + 2.5(r + 2) = 41$

B. $(1.5 + 2.5)(2r + 2) = 41$

C. $1.5r + 2.5(2r) = 41$

D. $1.5r + 2.5r + 2 = 41$

} miles

rate = $\frac{\text{miles}}{\text{hour}}$...

rate · hour = miles

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- D** 3. In the problem below, only one of the steps was justified with the correct property.

Steps	Justification
$6(3x - 4) - 26 = 40$	Original Problem
$18x - 24 - 26 = 40$	Associative Property of Multiplication \checkmark
$18x - 50 = 40$	Addition Property of Equality \checkmark
$18x = 90$	Distributive Property \checkmark
$x = 5$	Division Property of Equality \checkmark

Which justification was used correctly in the problem?

- A. Associative Property of Multiplication
- B. Addition Property of Equality
- C. Distributive Property
- D. Division Property of Equality**

- ★** 4. Solve the equation $34.8x + 0.2(x - 4) = -16.8 + 27x$.
Bubble your answer in the grid provided below.

-	2						
+	-	-	-	-	-	-	-
•	7	7	7	7	7	7	7
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
•	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

$$\begin{aligned}
 34.8x + 0.2x - 0.8 &= -16.8 + 27x \\
 35x - 0.8 &= -16.8 + 27x \\
 -27x + 0.8 &\quad +0.8 - 27x \\
 \hline
 8x &= \frac{-16}{8} \\
 \frac{8x}{8} &= \frac{-16}{8} \\
 x &= -2
 \end{aligned}$$

- D** 5. What is the solution for x in $5x - 2 + 2x = 7x - 2$?

- A. $x = 0$
- B. $x = 1$
- D. infinitely many solutions**

$$\begin{aligned}
 5x - 2 + 2x &= 7x - 2 \\
 7x - 2 &= 7x - 2 \quad \text{C. no solution} \\
 -7x &\quad -7x \quad \text{D. infinitely many solutions} \\
 \hline
 -2 &= -2 \\
 \text{TRUE} &
 \end{aligned}$$

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A 6. In the equation, $a = \frac{b-c}{d-e}$ solve for b . *isolate*

A. $b = a(d-e) + c$ $a = \frac{b-c}{d-e}$ C. $b = \frac{a}{d-e} + c$

B. $b = -\frac{c}{a(d-e)}$ $a(d-e) = (b-c)$ D. $b = ad + \frac{c}{e}$

$a(d-e) + c = b$

C 7. Which of the following inequalities represents the solution to $3a + 3 - 6a > 15$?

- A. $a < -6$ C. $a < -4$
B. $-6 < a < -4$ D. $a > -4$

$-3a + 3 > 15$

$-3a > 12$

PE
MD
AS

$a < -4$

* Switch direction
→ ÷ neg #

D ☆ 8. The soccer club president is planning to order shirts for each of the club's 15 members. It will cost \$45 for the design to be created and an additional cost for each shirt. The cost of each shirt varies depending on the type of shirt chosen with the prices shown below. The club president must order the same type of shirt for all of the members and cannot spend more than \$135. Based on this information, which type(s) of shirts can the club president choose to purchase?

$45 + 15x \leq 135$
 -45
 $15x \leq 90$
 15
 $x \leq 6$

Tank Top	\$3 each	✓
Short Sleeve	\$4 each	✓
Long Sleeve	\$6 each	✓
Sweatshirt	\$9 each	

- A. Sweatshirt
B. Long Sleeve
C. Sweatshirt, Long Sleeve, Short Sleeve or Tank Top
D. Long Sleeve, Short Sleeve or Tank Top

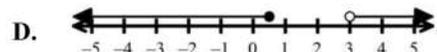
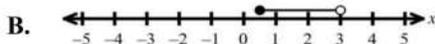
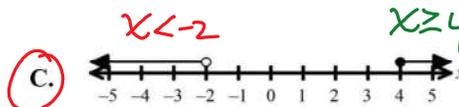
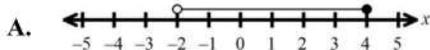
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- C 9. Which of the following represents the solution to the compound inequality, $2x + 5 < 1$ or $4x - 7 \geq 9$?

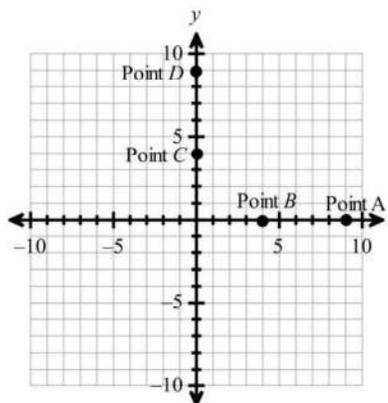


$$\begin{array}{r} 2x + 5 < 1 \\ -5 \quad -5 \\ \hline 2x < -4 \\ \frac{2x}{2} < \frac{-4}{2} \\ x < -2 \end{array} \quad \text{or} \quad \begin{array}{r} 4x - 7 \geq 9 \\ +7 \quad +7 \\ \hline 4x \geq 16 \\ \frac{4x}{4} \geq \frac{16}{4} \\ x \geq 4 \end{array}$$

Handwritten notes: "open" under $x < -2$, "closed" under $x \geq 4$.

10. A linear function has a slope of $-\frac{2}{3}$ and goes through the point $(0, 6)$. What point on the graph represents the x-intercept of the function?

- A. Point A
- B. Point B
- C. Point C
- D. Point D



11. A line graphed on the coordinate plane has a slope of 2 and contains the point $(3, 1)$. Which of the following points is on the same line?

- A. $(-3, -5)$
- B. $(-3, -2)$
- C. $(0, -5)$
- D. $(-5, 0)$

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Algebra 1 Semester 1 Instructional Materials 2021-22 Answers								
Topic 1 Solving Equations & Inequalities			Topic 2 Linear Equations			Topic 3 Linear Functions		
#	Ans	Standard	#	Ans	Standard	#	Ans	Standard
1.	F, H, I	HSA.REI.A.1	10.	A	HSF.IF.C.7a	23.	F, H, J, K	HSF.IF.A.1
2.	A	HSA.CED.A.1	11.	C	HSF.IF.C.7a	24.	B	HSF.IF.B.5
3.	D	HSA.REI.A.1	12.	B	HSA.CED.A.2 HSF.IF.C.7a	25.	A	HSF.IF.A.2
4.	-2.0	HSA.REI.B.3	13.	C	HSF.IF.C.7a	26.	-45	HSF.IF.A.2 HSA.IF.A.1
5.	D	HSA.REI.B.3	14.	F, H	HSS.ID.C.7	27.	D	HSF.LE.A.2
6.	A	HSA.CED.A.4	15.	D	HSA.CED.A.2 HSF.LE.A.2	28.	A	HSA.CED.A.2 HSF.LE.A.2 HSS.ID.C.7
7.	C	HSA.REI.B.3	16.	G, I, J	HSA.CED.A.2	29.	D	HSF.IF.A.2 HSF.IF.B.5
8.	D	HSA.CED.A.1 HSA.CED.A.3	17.	D	HSS.ID.C.7	30.	D	HSS.ID.C.7 HSS.ID.B.6
9.	C	HSA.REI.B.3	18.	C	HSA.CED.A.1	31.	C	HSS.ID.B.6.A HSS.ID.B.6.C
			19.	A	HSS.ID.C.7	32.	A	HSF.IF.A.1 HSF.LE.A.2
			20.	C	HSS.ID.C.7	33.	H, J, K, L	HSF.BF.A.1 HSF.BF.A.2
			21.	$\frac{8}{5}$	HSA.CED.A.2 HSG.GPE.B.5			
			22.	A	HSA.CED.A.2 HSG.GPE.B.5			

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Algebra 1 Semester 1 Instructional Materials 2021-22 Answers					
Topic 4 Systems of Equations & Inequalities			Topic 5 Absolute Value Functions		
#	Ans	Standard	#	Ans	Standard
34.	B	HSA.REI.C.6	48.	A	HSA.CED.A.1
35.	G, I	HSA.REI.C.6	49.	B	HSA.CED.A.1
36.	A	HSA.REI.C.6 HSA.CED.A.2	50.	G, J	HSF.IF.B.4
37.	A	HSA.REI.C.6	51.	A	HSF.IF.C.7a
38.	D	HSA.REI.C.6 HSA.CED.A.2	52.	A	HSF.IF.C.7b
39.	B	HSA.REI.C.5 HSA.REI.C.6	53.	B	HSF.IF.C.7b
40.	C	HSA.REI.C.5 HSA.REI.C.6	54.	B	HSF.IF.B.4 HSF.IF.B.6
41.	D	HSA.CED.A.2	55.	C	HSF.IF.B.4
42.	2.50	HSA.REI.C.5 HSA.REI.C.6 HSA.CED.A.2 HSA.CED.A.3	56.	D	HSF.IF.C.7.b
43.	B	HSA.REI.D.12 HSA.CED.A.3	57.	C	HSF.BF.B.3
44.	C	HSA.REI.D.12 HSA.CED.A.3	58.	G, I	HSF.IF.C.7.b
45.	C	HSA.REI.D.12 HSA.CED.A.3	59.	B	HSF.BF.B.3
46.	D	HSA.REI.D.12 HSA.CED.A.3	60.	B	HSF.IF.B.4
47.	A	HSA.REI.D.12 HSA.CED.A.3	61.	D	HSF.BF.B.3

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