

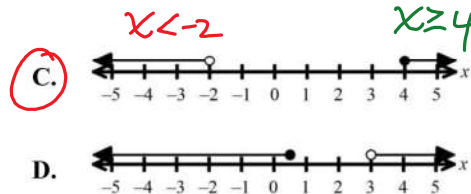
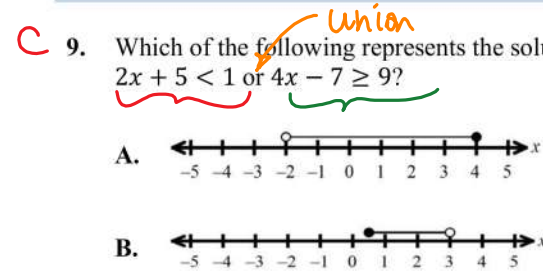
ALGEBRA 1 SEMESTER 1 INSTRUCTIONAL MATERIALS

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

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

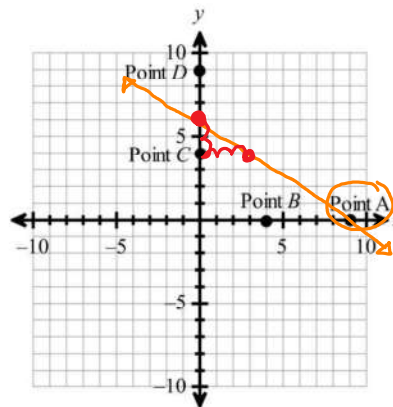


$$\begin{array}{r} 2x + 5 < 1 \\ -5 \quad -5 \\ \hline 2x < -4 \\ \frac{2x}{2} < \frac{-4}{2} \\ x < -2 \end{array} \quad \text{or} \quad \begin{array}{r} 4x - 7 \geq 9 \\ +7 \quad +7 \\ \hline 4x \geq 16 \\ \frac{4x}{4} \geq \frac{16}{4} \\ x \geq 4 \end{array}$$

*Handwritten notes: "Union" above the inequality, "open" under  $x < -2$ , "closed" under  $x \geq 4$ .*

- A 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



- C 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.  $(-5, 0)$

*Handwritten work:*

$$y = mx + b$$

$$y - y_1 = m(x - x_1)$$

$$y - 1 = 2(x - 3)$$

$$y - 1 = 2x - 6$$

$$y + 1 = 2x - 5$$

$$y = 2x - 5$$

**Check Points**

$(-3, -5): -5 \stackrel{?}{=} 2(-3) - 5$   
 $-5 = -6 - 5$  (4)

$(-3, -2): -2 \stackrel{?}{=} 2(-3) - 5$   
 $-2 = -6 - 5$  (11)

$(0, -5): -5 \stackrel{?}{=} 2(0) - 5$   
 $-5 = 0 - 5$  (4)

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**B** 12. What is the equation of the line graphed below?

~~A.~~  $y = \frac{2}{3}x + 9$

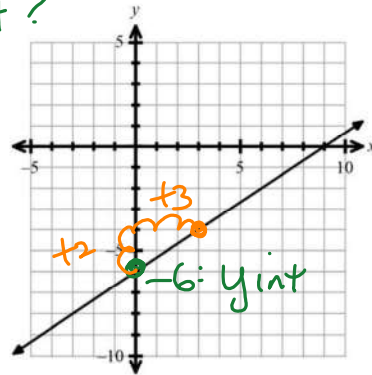
**B.**  $y = \frac{2}{3}x - 6$

~~C.~~  $y = \frac{3}{2}x + 9$

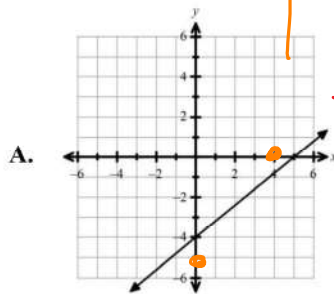
~~D.~~  $y = \frac{3}{2}x - 6$

$y = mx + b$

y-int?

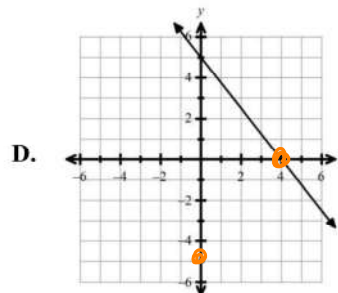
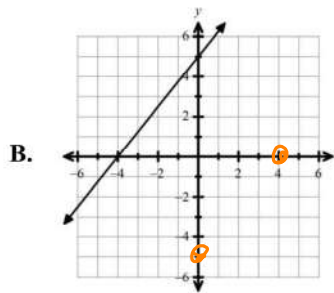
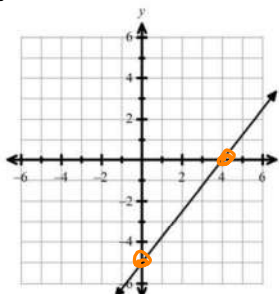


**C** 13. Which is the graph of  $5x = 4y + 20$ ?  $\Rightarrow 5x - 4y = 20$



x-int  
set  $y=0$   
 $\frac{5x}{5} = \frac{20}{5}$   
 $x = 4$

y-int  
set  $x=0$   
 $\frac{-4y}{-4} = \frac{20}{-4}$   
 $y = -5$



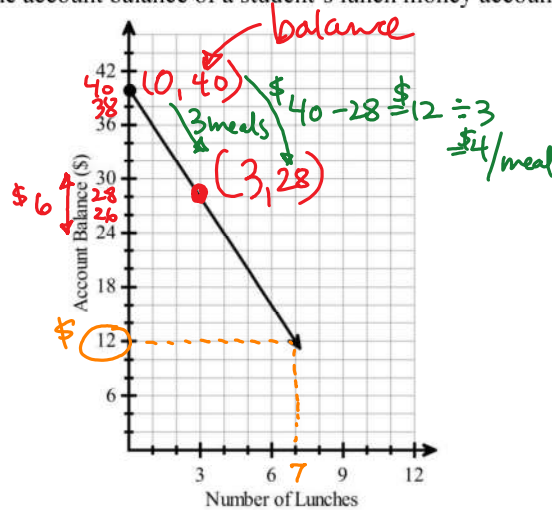
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**F.H** 14. The graph below shows the account balance of a student's lunch money account.



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

- F.** Each lunch costs \$4.
- G.** Each lunch costs \$3. **!!**
- H.** The account started with a balance of \$40.
- I.** The student won't have any money left in the account after eating 7 lunches. **!!**
- J.** The student has enough money in the account to pay for 40 lunches. **!!**  $40 \times 4 = 160$

**D** 15. Which equation of the line passes through the points  $(\frac{3}{2}, 5)$  and  $(-\frac{1}{2}, 8)$ ?

**A.**  $y = \frac{3}{2}(x + \frac{1}{2}) + 8$  **Slope?**

**B.**  $y = \frac{3}{2}(x + \frac{3}{2}) + 5$   $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{8 - 5}{-\frac{1}{2} - \frac{3}{2}} = \frac{3}{-4} = -\frac{3}{4}$

**C.**  $y = -\frac{3}{2}(x - \frac{1}{2}) + 8$

**D.**  $y = -\frac{3}{2}(x - \frac{3}{2}) + 5$

pt. slope  
 $y - y_1 = m(x - x_1)$   
 $y = m(x - x_1) + y_1$

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G, I, J

16. Select the equations that have a slope of  $\frac{1}{2}$  and go through the point  $(-6, 2)$ . Select all that apply

F.  $y - 6 = \frac{1}{2}(x + 2)$

G.  $y - 2 = \frac{1}{2}(x + 6)$

H.  $x + 2y = 5$

I.  $y = \frac{1}{2}x + 5$

J.  $x - 2y = -10$

K.  $y = \frac{1}{2}x + 2$

$y - y_1 = m(x - x_1)$   
 $y - 2 = \frac{1}{2}(x - (-6))$

$\rightarrow \frac{2y}{2} = \frac{-x+5}{2} \rightarrow y = -\frac{1}{2}x + \frac{5}{2} = 3 + \frac{5}{2}$

$y = mx + b$   $y = \frac{1}{2}(-6) + 5 = -3 + 5 = 2$

$\rightarrow \frac{-2y}{-2} = \frac{-x-10}{-2} \rightarrow y = \frac{1}{2}x + 5$

$y = mx + b$

D

17. What are the coordinates of the x-intercept of the equation  $6x - 3y = 24$ ?

A.  $(0, -8)$

B.  $(0, 4)$

C.  $(-8, 0)$

D.  $(4, 0)$

\* Set  $y=0$

$6x = 24$   
 $\frac{6x}{6} = \frac{24}{6}$   
 $x = 4$



C

18. The table shows how the cost of an automobile repair depends on the time the repair takes.

Automobile Repair Costs	
Time (hours)	Cost (dollars)
1	85
2	145
3	205
4	265
5	325

initial cost 25  
 $\uparrow$  \$60/hour  
 $\downarrow$  +60

A customer spends \$640 for an automobile repair. Which equation can be solved for  $x$ , the time in hours that the repair took?

A.  $60x + 85 = 640$

B.  $25x + 60 = 640$

C.  $60x + 25 = 640$

D.  $85x + 60 = 640$

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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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