1.) In the equation below, what is the value of n?

$$\frac{7(n-3)+11}{6} = \frac{18-(6+2n)}{8}$$

A) $\frac{38}{17}$

B) $\frac{38}{11}$

C) $\frac{56}{11}$

D) $\frac{94}{11}$

$\frac{76 \div 2}{34 \div 2}$

$\frac{7n-21+11}{6} = \frac{18-6-2n}{8}$

$24\left(\frac{7n-10}{6}\right) = \left(\frac{12-2n}{8}\right)24$

$4(7n-10) = 3(12-2n)$

$28n - 40 = 36 - 6n$

$34n = 76 \quad n = \frac{76}{34}$

2.) If $36 + 3(4x + 9) = c(2x + 1) + 25$ has no solution and c is a constant, what is the value of c?

A) -3

B) 3

C) 6

D) 12

$36 + 12x + 27 = 2cx + c + 25$

$c = 6$

$\frac{12x}{2x} = \frac{2cx}{2x}$

$c = 6$

3.) Sandy works at a tire store. She gets paid $70 for a day's work, plus a commission of $14 for each tire she sells. Which of the following equations represents the relationship between one day of Sandy's pay, y, and the number of tires she sells, x?

A) $x = 14y + 70$

B) $x = 70y + 14$

C) $y = 14x + 70$

D) $y = 70x + 14$

$y = 70 + 14x$

Hwk #20 Answers

1.) -4 2.) -3 3.) 63 4.) -7

5.) 11 6.) 5 7.) -3 8.) 41

9.) 1 10.) $\frac{3}{5}$ 11.) 11

13.) Let x = money made at car wash; $x + 25.00 = 453.50$; $428.50

14.) Let m = miles driven. $55 + 0.20m = 80$; 125 *mi.*

16.) Identity 17.) -2 18.) -8 19.) No Solution

27.) Let t = time for family car. $40t + 60(t - 2) = 380$; 5:00 PM

27. Travel At noon, your family leaves Louisville on a trip to Memphis driving at 40 miles per hour. Your uncle leaves Memphis to come to Louisville 2 hours later. He is taking the same route and is driving 60 miles per hour. The two cities are 380 miles apart. At what time do the cars meet?

	d	r	$\cdot$	t
your fam	$40t$	40		t
uncle	$60(t-2)$	60		$t-2$

$60(t-2)+40t=380$

Solve each equation. Check your answers.

1. $5n = -20$
2. $t + 7 = 4$
3. $\frac{r}{3} = 21$
4. $u - 8 = -15$
5. $-x + 4 = -7$
6. $-2z + 1 = -9$
7. $3w + 2 - w = -4$
8. $\frac{1}{4}(k - 1) = 10$
9. $6(y + 3) = 24$
10. $\frac{5n + 1}{8} = \frac{1}{2}$
11. If $2t + 3 = -9$, what is the value of $-3t - 7$?

Define a variable and write an equation to model each situation. Then solve.

13. Your chorus holds a car wash. They have $25.00 for making change. At the end of the car wash, they have $453.50. How much money did they make?
14. **Truck Rental** The rate to rent a certain truck is $55 per day and 20¢ per mile. Your family pays $80 to rent this truck for one day. How many miles did your family drive?

Solve. If the equation is an identity, write *identity*. If it has no solution, write *no solution*.

16. $9j + 3 = 3(3j + 1)$
17. $2(1 - 2y) = 4y + 18$
18. $4v - 9 = 6v + 7$
19. $4p - 5 + p = 7 + 5p + 2$

Same Direction Travel:

When one person catches up to another person....
Their distances traveled are EQUAL

Round-Trip:
The distance to a destination is EQUAL to the return distance

Opposite Direction Travel:

The SUM of their distances EQUALS how far apart

1. Andy went for a walk at 4 mph. After reaching his destination he turned around and walked back along the same path at 6 mph. The total time Andy spent walking was 3 hours. Write and solve an equation to find the amount of time he spent walking each way.

Round trip

	Distance =	Rate •	Time
There	$4t$	4	t
Back	$6(3-t)$	6	$3-t$

1.8

$1.2t = 1.8$

$1hr$

$48\ min$

$1hr$

$12\ min$

$4t = 6(3-t)$

$4t = 18-6t$

$+6t \quad +6t$

$\frac{10t}{10} = \frac{18}{10}$

2. Mr. Amen left on his boat at 9:00 am and sailed at 12 mph. Mr. Richards left on his boat at 9:30 am and sailed at 15mph trying to catch up with Mr. Amen. At what time of day will Mr. Richard catch up with Mr. Amen?

Same direction

	Distance =	Rate •	Time
Am	$12t$	12	T
R	$15(t-.5)$	15	$T-.5$

2.5

$12t = 15(t-.5)$

2.0

$12t = 15t - 7.5$

$-15t \quad -15t$

$\frac{-3t}{-3} = \frac{-7.5}{-3}$

$t = 2.5$

$1:25$

3. You jog 6 mph and your friend jogs 8 mph. You both leave your house and jog in opposite directions. The total time spent running between you and your friend is 3 1/2 hours. When you both stop you are 23 1/2 miles apart. Find the time each of you spent jogging.

Opposite direction

	Distance =	Rate •	Time
Y	6t	6	t
f	8(3.5-t)	8	3.5-t

$6t+8(3.5-t)=23.5$

$6t+28-8t=23.5$

$-2t+28=23.5$

$-28 \quad -28$

$\frac{-2t}{-2}=\frac{-4.5}{-2}$

$t=2.25$

$Y=2hr15m$

$f=1hr25m$

4. A train travels round-trip between Detroit and Memphis. The train traveled 75 mph in on the way to Memphis but due to weather it could only travel 60 mph on the return trip. The total travel time was 9 hours. Find the time it took to travel in each direction.

Round Trip

	Distance =	Rate •	Time
D→M	75t	75	t = 4
M→D	60(9-t)	60	9-t = 5

$75t=60(9-t)$

$75t=540-60t$

$+60t \quad +60t$

$\frac{135t}{135}=\frac{540}{135}$

$t=4$