What is Heavy Forward But Not Backward?
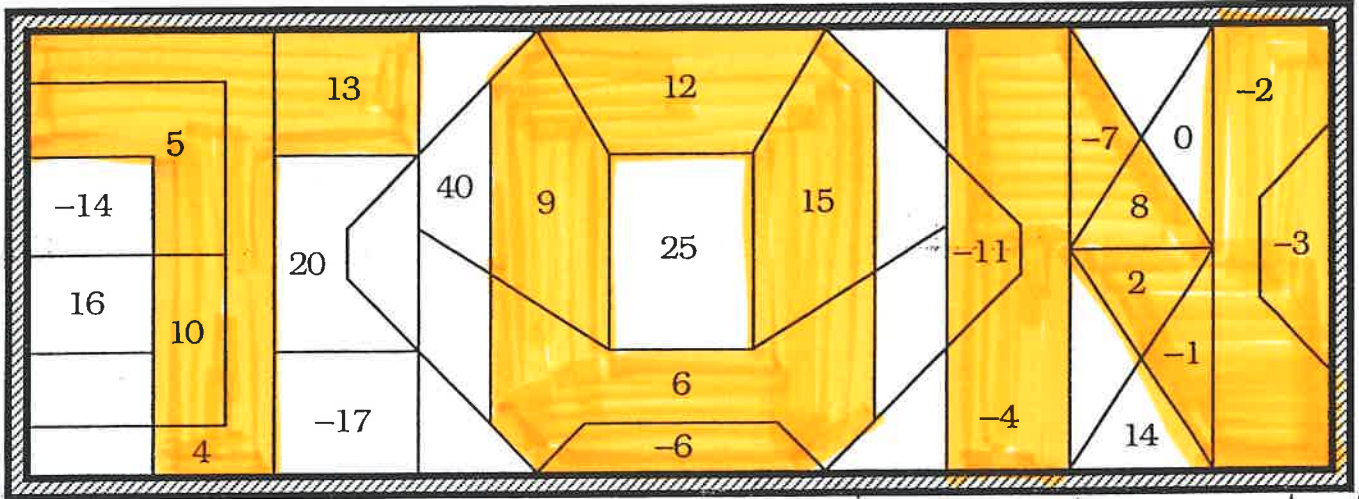
Show your work on this page. You should have 5-6 steps for every problem!

1.
$$x + 3(x+4) = 20$$
$$x + 3x + 12 = 20$$
$$4x + 12 -12 = 20 -12$$
$$\frac{4x}{4} = \frac{8}{4}$$
$$\boxed{x = 2}$$

2.
$$6(y-1) + 8 = 32$$
$$6y - 6 + 8 = 32$$
$$6y + 2 -2 = 32 -2$$
$$\frac{6y}{6} = \frac{30}{6}$$
$$\boxed{y = 5}$$

3.
$$5 + 4(n+9) = -3$$
$$5 + 4n + 36 = -3$$
$$4n + 41 -41 = -3 -41$$
$$\frac{4n}{4} = \frac{-44}{4}$$
$$\boxed{n = -11}$$

4.
$$5(k-2) - 8k = -34$$
$$5k - 10 - 8k = -34$$
$$-3k - 10 +10 = -34 +10$$
$$\frac{-3k}{-3} = \frac{-24}{-3}$$
$$\boxed{k = 8}$$

5.
$$2 = 11 + 3(m+3)$$
$$2 = 11 + 3m + 9$$
$$2 -20 = 3m + 20 -20$$
$$\frac{-18}{3} = \frac{3m}{3}$$
$$\boxed{-6 = m}$$

6.
$$-2(p-5) + 7p = -5$$
$$-2p + 10 + 7p = -5$$
$$5p + 10 -10 = -5 -10$$
$$\frac{5p}{5} = \frac{-15}{5}$$
$$\boxed{p = -3}$$

7.
$$4a - 2(a+9) = 6$$
$$4a - 2a - 18 = 6$$
$$2a - 18 +18 = 6 +18$$
$$\frac{2a}{2} = \frac{24}{2}$$
$$\boxed{a = 12}$$

8.
$$7 - 4(d-3) = 23$$
$$7 - 4d + 12 = 23$$
$$-4d + 19 -19 = 23 -19$$
$$\frac{-4d}{-4} = \frac{4}{-4}$$
$$\boxed{d = -1}$$

9.
$$8x - 11(x-2) = -8$$
$$8x - 11x + 22 = -8$$
$$-3x + 22 -22 = -8 -22$$
$$\frac{-3x}{-3} = \frac{-30}{-3}$$
$$\boxed{x = 10}$$

10.
$$5 = 6(q-5) - 19$$
$$5 = 6q - 30 - 19$$
$$5 +49 = 6q - 49 +49$$
$$\frac{54}{6} = \frac{6q}{6}$$
$$\boxed{9 = q}$$

11.
$$3(3-y) + 1 = 31$$
$$9 - 3y + 1 = 31$$
$$-3y + 10 -10 = 31 -10$$
$$\frac{-3y}{-3} = \frac{21}{-3}$$
$$\boxed{y = -7}$$

12.
$$5(2v+4) = 170$$
$$10v + 20 -20 = 170 -20$$
$$\frac{10v}{10} = \frac{150}{10}$$
$$\boxed{v = 15}$$

13.
$$5(4n-4) = -60$$
$$20n - 20 +20 = -60 +20$$
$$\frac{20n}{20} = \frac{-40}{20}$$
$$\boxed{n = -2}$$

14.
$$2(3t-8) - 4t = 10$$
$$6t - 16 - 4t = 10$$
$$2t - 16 +16 = 10 +16$$
$$\frac{2t}{2} = \frac{26}{2}$$
$$\boxed{t = 13}$$

15.
$$9 - 4(2p-1) = 45$$
$$9 - 8p + 4 = 45$$
$$-8p + 13 -13 = 45 -13$$
$$\frac{-8p}{-8} = \frac{32}{-8}$$
$$\boxed{p = -4}$$

WHAT IS HEAVY FORWARD BUT NOT BACKWARD? Key

Shade in the area containing each solution. ∗Show neat, organized work on backside

1. $x + 3(x + 4) = 20$

2. $6(y - 1) + 8 = 32$

3. $5 + 4(n + 9) = -3$

4. $5(k - 2) - 8k = -34$

5. $2 = 11 + 3(m + 3)$

6. $-2(p - 5) + 7p = -5$

7. $4a - 2(a + 9) = 6$

8. $7 - 4(d - 3) = 23$

9. $8x - 11(x - 2) = -8$

10. $5 = 6(q - 5) - 19$
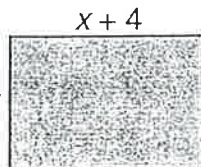
11. $3(3 - y) + 1 = 31$

12. $5(2v + 4) = 170$

13. $5(4n - 4) = -60$
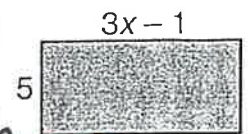
14. $2(3t - 8) - 4t = 10$

15. $9 - 4(2p - 1) = 45$

16. Write an equation and solve for x if the area of the rectangle is 70 square units.

$x + 4$

7

$A = b \cdot h$

$70 = (x + 4)7$

$70 - 28 = 7x + 28 - 28$

$42 = 7x$

$\frac{42}{7} = \frac{7x}{7}$

$\boxed{x = 6 \text{ units}}$

17. Write an equation and solve for x if the area of the rectangle is 55 square units.

$3x - 1$

5

$A = b \cdot h$

$55 = (3x - 1)(5)$

$55 = 15x - 5 + 5$

$60 = 15x$

$\frac{60}{15} = \frac{15x}{15}$

$\boxed{x = 4 \text{ units}}$