EQUATIONS AND INEQUALITIES
STUDY GUIDE FOR TEST

NAME: _____ PERIOD: _____DATE: _____

FACTOR THE EXPRESSIONS.

1. $49x - 35$

$7(7x - 5)$

2. $12b + 40$

$4(3b + 10)$

3. $6 + 30n$

$6(1 + 5n)$

APPLY THE DISTRIBUTIVE PROPERTY

4. $2(3 - 8y)$

$6 - 16y$

5. $-3(-9 + 8r)$

$27 - 24r$

6. $-1(2t - 8)$

$-2t + 8$

WHAT ARE THE FIRSTS 5 PERFECT SQUARES?

7. ___1___ ___4___ ___9___ ___16___ ___25___

ESTMIATE $\sqrt{130}$

8. $\sqrt{121} = 11$ $\sqrt{130} \approx 11\ 3 - 114$ $\sqrt{144} = 12$
   ↑ 14

ESTIMATE $\sqrt{27}$

9. $\sqrt{25} = 5$ $\sqrt{27} \approx 51 \cdot 53$ $\sqrt{36} = 6$
   2 9

WRITE THE FRACTIONS BELOW AS A DECIMAL.

10. $\frac{3}{4}$

0.75

11. $\frac{1}{3}$

$0.\overline{33}$

12. $\frac{5}{6}$

$0.8\overline{33}$

SOLVE FOR THE VARIABLE.

13. $1.8 = -2.5m - 1.7$

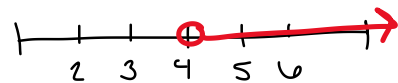$+1.7 \qquad +1.7$

$\dfrac{3.5}{-2.5} = \dfrac{-2.5m}{-2.5}$

$m = -14$

14. $\left(\dfrac{k+4}{9}\right) = (6) \; 9$

$k + 4 = 54$

$-4 \quad -4$

$k = 50$

15. $4x + 6 = x$

$-4x \qquad -4x$

$\dfrac{6}{-3} = \dfrac{-3x}{-3}$

$x = -2$

16. $\left(\dfrac{45}{x}\right) = (9) \, x$
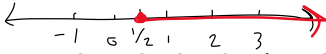
$\dfrac{45}{9} = \dfrac{9x}{9}$

$x = 5$

17. $10z - 15 - 4z = 8 - 2z - 15$

$6z - 15 = -7 - 2z$

$+2z \qquad\quad +2z$

$8z - 15 = -7$

$+15 \quad +15$

$\dfrac{8z}{8} = \dfrac{8}{8}$

$z = 1$

18. $2x - 3 > 5$

$+3 \quad +3$

$\dfrac{2x}{2} > \dfrac{8}{2}$

$x > 4$

19. $-2x + 4 \le 3$

$$-4 \quad -4$$
$$\frac{-2x \le -1}{-2 \quad -2}$$
$$x \ge \tfrac{1}{2}$$

20. $2x + 3 > 5x - 6$

$$-5x \quad -5x$$
$$-3x + 3 > -6$$
$$-3 \quad -3$$
$$\frac{-3x > -9}{-3 \quad -3}$$
$$x < 3$$

21. $(3x) - 2(-4x) > 5$

$$-x - 2 > 5$$
$$+2 \quad +2$$
$$-x > 7$$
$$x < -7$$
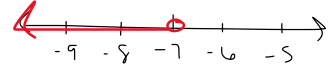
WRITE AN EQUATION/INEQUALITY FOR THE SITUATION GIVEN, THEN SOLVE

22. Chris's landscaping bill is $380. The plants costs $212, and the labor costs $48 per hour. How many hours did the landscaper work?

$$\$380 = \$212 + 48h$$
$$-212 \quad -212$$
$$\frac{\$168 = 48h}{48 \quad 48}$$

$$h = 3.5 \text{ hours}$$

23. The cost of a family membership at a health club is $58 per month plus a one-time startup fee of $129. If a family has spent $651, how many months is their membership?

$$58m + 129 = 651$$
$$-129 \quad -129$$
$$\frac{58m = 522}{58 \quad 58}$$

$$m = 9 \text{ months}$$

24. The vet says that Lena's puppy will grow to be at most 28 inches tall. Lena's puppy is currently 1 foot tall. How many more inches will the puppy grow?

$$28 \ge 12 + x$$
$$-12 \quad -12$$
$$16 \ge x$$
$$x \le 16$$
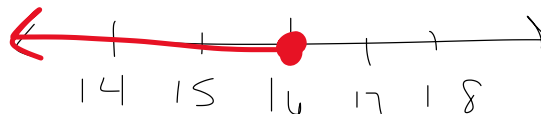
25. The 45 members of the glee club are trying to raise $6,000 so they can compete in the state championship. They already have $1,240. What inequality can you write to find the amount each member must raise, on average, to meet the goal?

$$6,000 \le 1240 + 45x$$
$$-1240 \quad -1240$$
$$\frac{4760 \le 45x}{45 \quad 45}$$
$$\$105.78 \le x$$

$$x \ge \$105.78$$