

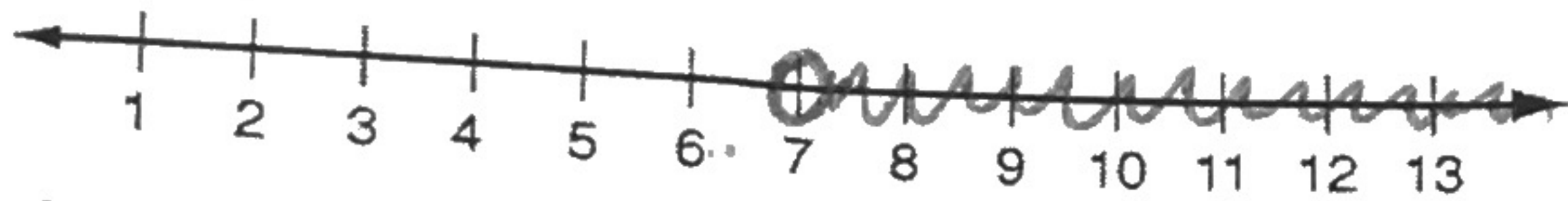
Practice B

Solving Two-Step and Multi-Step Inequalities

Solve each inequality and graph the solutions.

1. $-3a + 10 < -11$
 $\frac{-3a}{-3} < \frac{-21}{-3}$ $a > 7$

2. $4x - 12 \geq 20$
 $\frac{4x}{4} \geq \frac{32}{4}$ $x \geq 8$



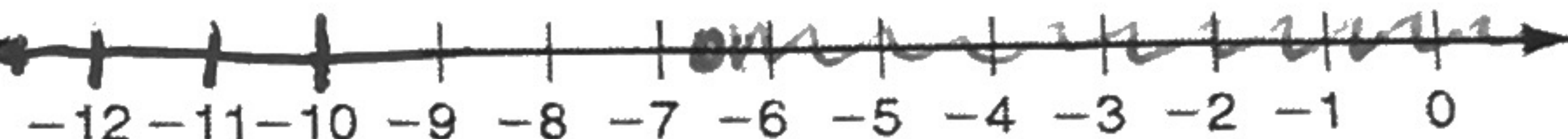
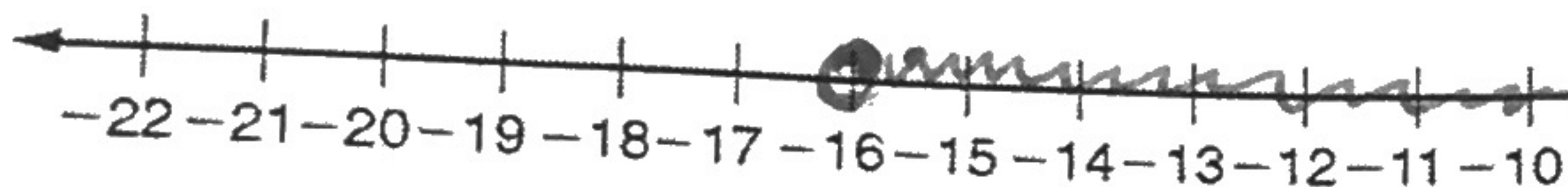
3. $\frac{2k - 3}{-5} > 7 - 5$
 $\frac{2k - 3}{-5} > 2$
 $2k - 3 > -10$
 $2k > -7$
 $k > -3.5$

$2k - 3 > -10$
 $2k > -7$
 $k > -3.5$

$2k > -7$
 $k > -3.5$

4. $-\frac{1}{5}z + \frac{2}{3} \leq 2$
 $-\frac{1}{5}z \leq \frac{4}{3}$
 $z \geq -\frac{20}{3}$

$-\frac{1}{5}z \leq \frac{4}{3}$
 $z \geq -\frac{20}{3}$

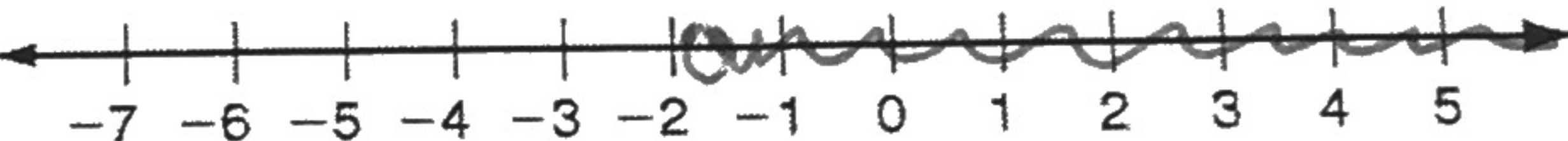
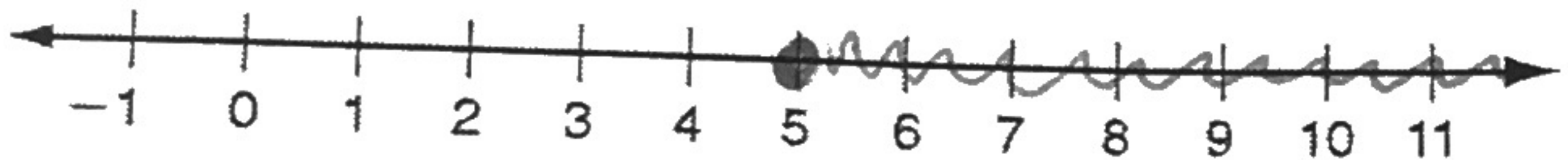


5. $6(n - 8) \geq -18$
 $6n - 48 \geq -18$
 $6n \geq 30$
 $n \geq 5$

$6n \geq 30$
 $n \geq 5$

6. $10 - 2(3x + 4) < 11$
 $10 - 6x - 8 < 11$
 $-6x + 2 < 11$
 $-6x < 9$
 $x > -\frac{3}{2}$

$-6x + 2 < 11$
 $-6x < 9$
 $x > -\frac{3}{2}$

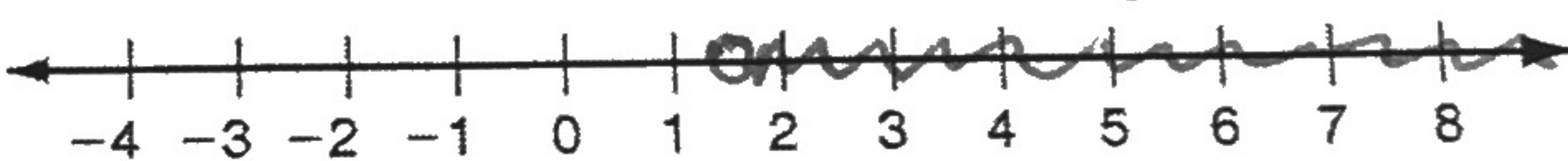
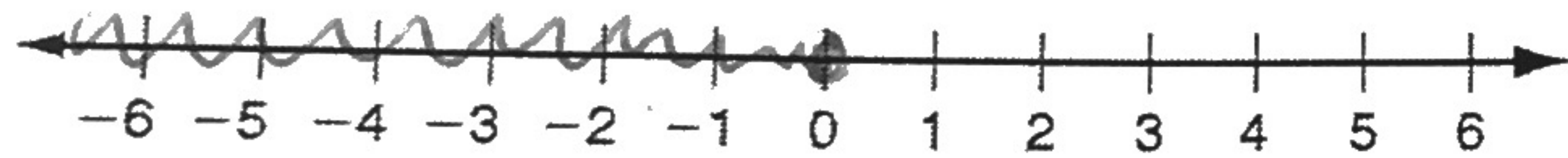


7. $7 + 2c - 4^2 \leq -9$
 $7 + 2c - 16 \leq -9$
 $2c - 9 \leq -9$
 $2c \leq 0$
 $c \leq 0$

$2c - 9 \leq -9$
 $2c \leq 0$
 $c \leq 0$

8. $15p + 3(p - 1) > 3(2^3)$
 $15p + 3p - 3 > 24$
 $18p - 3 > 24$
 $18p > 27$
 $p > \frac{3}{2}$

$18p > 27$
 $p > \frac{3}{2}$



Write and solve an inequality for each problem.

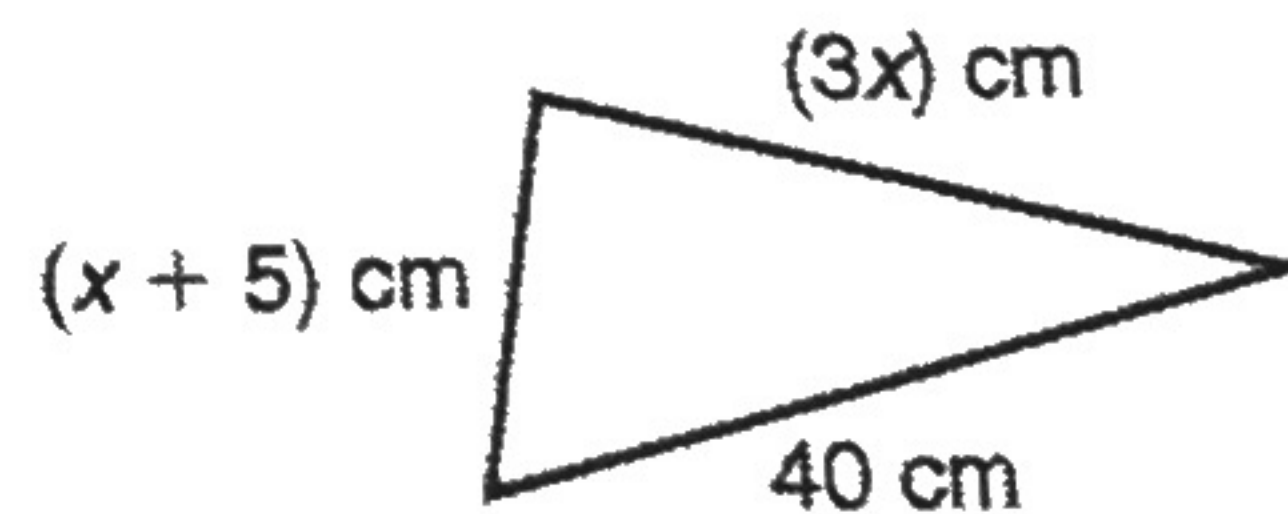
9. A full-year membership to a gym costs \$325 upfront with no monthly charge. A monthly membership costs \$100 upfront and \$30 per month. For what numbers of months is it less expensive to have a monthly membership?

$325 > 100 + 30m$

$225 > 30m$
 $7.5 > m$

7.5 > m for 7 months or less

10. The sum of the lengths of any two sides of a triangle must be greater than the length of the third side. What are the possible values of x for this triangle?



$3x + x + 5 > 40$

$4x + 5 > 40$

$4x > 35$

$\frac{4x}{4} > \frac{35}{4}$

$x > 8.75$

any value greater than 8.75

Practice B

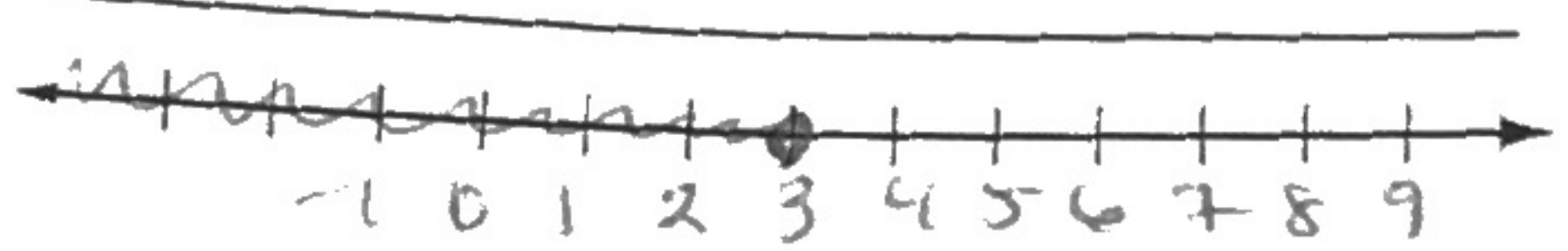
Solving Inequalities with Variables on Both Sides

Solve each inequality and graph the solutions.

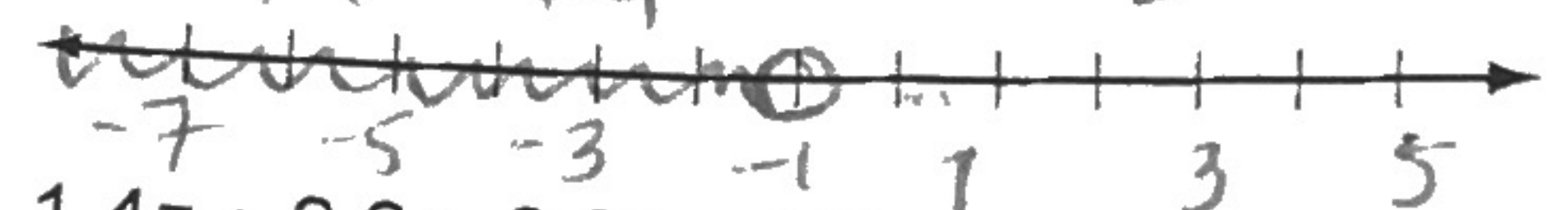
1. $2x + 30 \geq 7x$
 $-2x \quad -2x$
 $30 \geq 5x$
 $\frac{30}{5} \geq \frac{5x}{5}$
 $6 \geq x$
 $x \leq 6$



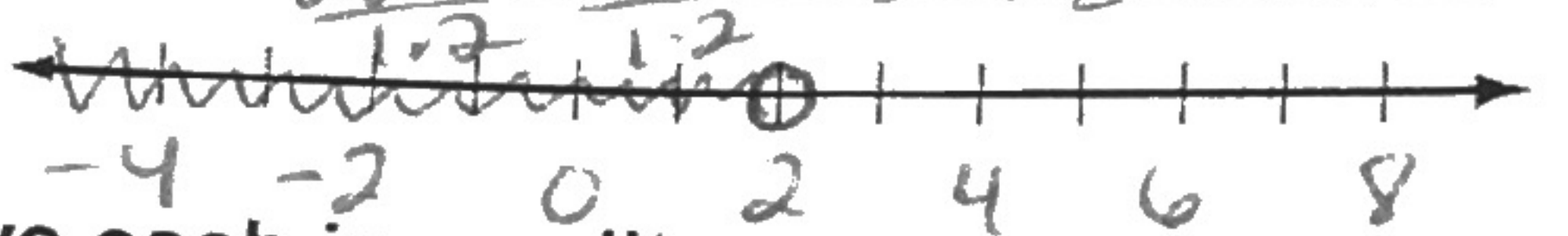
3. $3b - 2 \leq 2b + 1$
 $-2b \quad -2b$
 $b - 2 \leq 1$
 $+2 \quad +2$
 $b \leq 3$



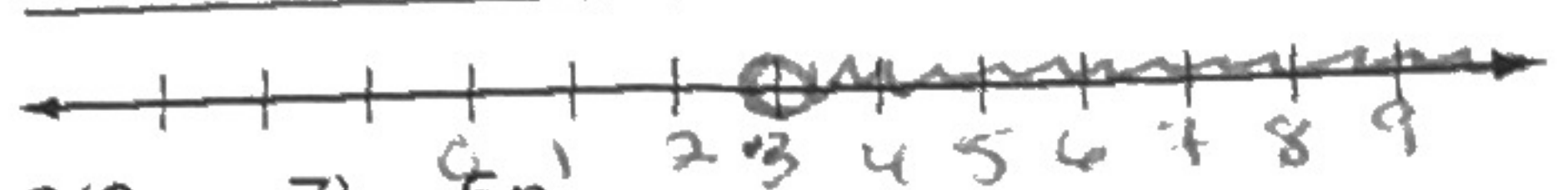
5. $5s - 9 < 2(s - 6)$
 $5s - 9 < 2s - 12$
 $-2s \quad -2s$
 $3s - 9 < -12$
 $\frac{3s}{3} < \frac{-3}{3}$
 $s < -1$



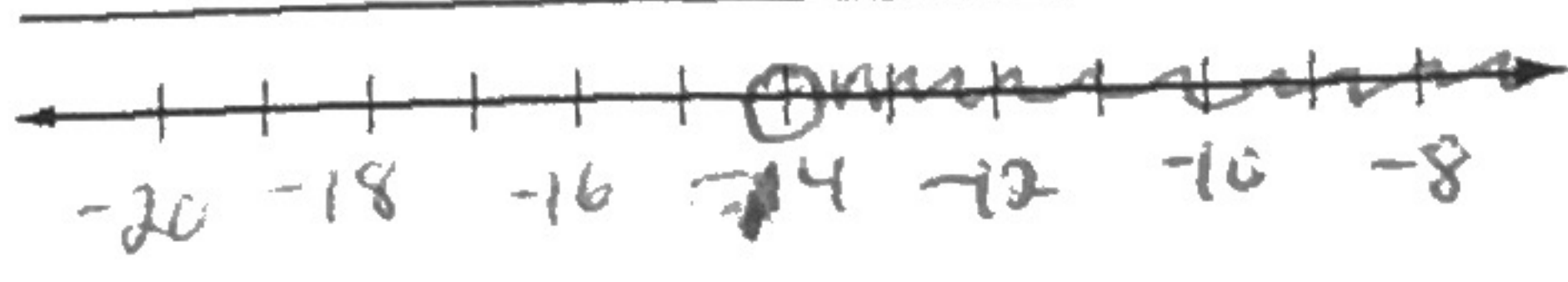
7. $1.4z + 2.2 > 2.6z - 0.2$
 $-1.4z \quad -1.4z$
 $2.2 > 1.2z - 0.2$
 $+0.2 \quad +0.2$
 $2.4 > 1.2z$
 $\frac{2.4}{1.2} > \frac{1.2z}{1.2}$
 $2 > z$
 $z < 2$



2. $2k + 6 < 5k - 3$
 $-2k \quad -2k$
 $6 < 3k - 3$
 $+3 \quad +3$
 $9 < 3k$
 $\frac{9}{3} < \frac{3k}{3}$
 $3 < k$
 $k > 3$



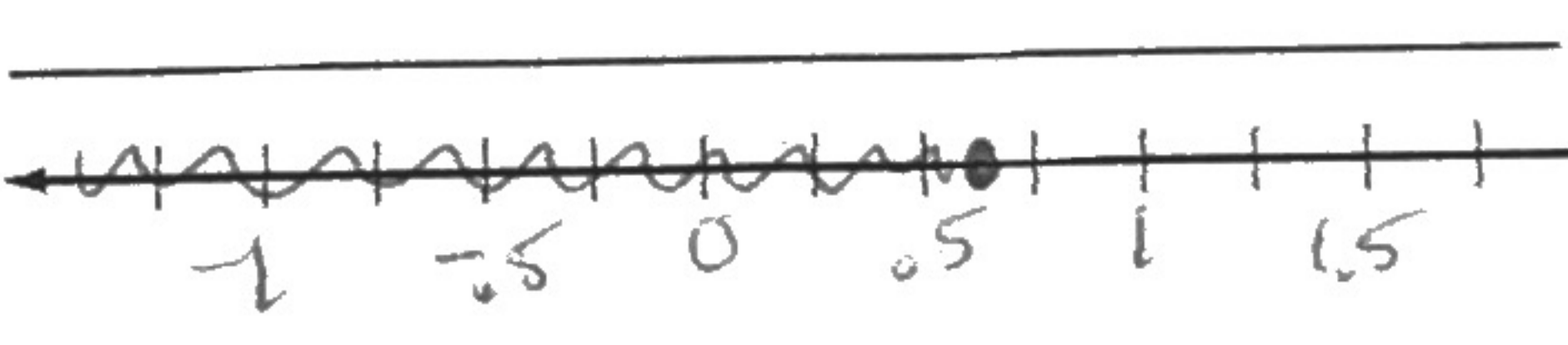
4. $2(3n + 7) > 5n$
 $6n + 14 > 5n$
 $-6n \quad -6n$
 $14 > -n$
 $-14 \quad -14$
 $0 > -n - 14$
 $n > -14$



6. $-3(3x + 5) \geq -5(2x - 2)$
 $-9x - 15 \geq -10x + 10$
 $+10x \quad +10x$
 $x - 15 \geq 10$
 $+15 \quad +15$
 $x \geq 25$



8. $\frac{7}{8}p - \frac{1}{4} \leq \frac{1}{2}p$
 $-\frac{7}{8}p \quad -\frac{7}{8}p$
 $-\frac{1}{4} \leq \frac{1}{8}p$
 $\frac{8}{8} \cdot \frac{1}{4} \leq \frac{8}{8} \cdot \frac{1}{8}p$
 $-\frac{2}{4} \leq \frac{1}{8}p$
 $-\frac{1}{2} \leq \frac{1}{8}p$
 $\frac{2}{3} \geq p$
 $p \leq \frac{2}{3}$



Solve each inequality.

9. $v + 1 > v - 6$
 $-v \quad -v$
 $1 > -6$
yes infinite solutions

10. $3(x + 4) \leq 3x$
 $3x + 12 \leq 3x$
 $-3x \quad -3x$
 $12 \leq 0$
no solution!

11. $-2(8 - 3x) \geq 6x + 2$
 $-16 + 6x \geq 6x + 2$
 $-6x \quad -6x$
 $-16 \geq 2$
no solution!

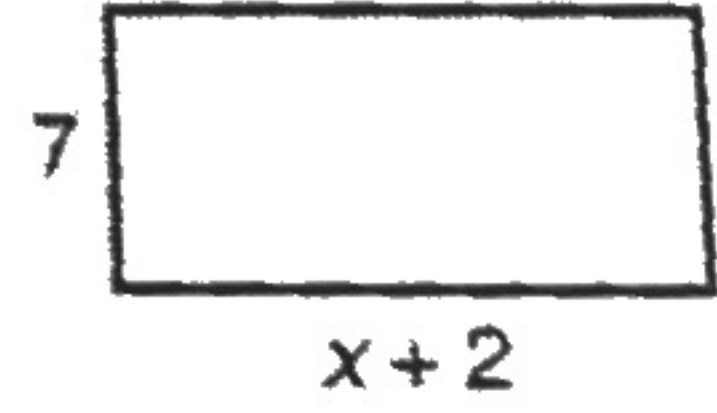
Write and solve an inequality for each problem.

12. Ian wants to promote his band on the Internet. Site A offers website hosting for \$4.95 per month with a \$49.95 startup fee. Site B offers website hosting for \$9.95 per month with no startup fee. For how many months would Ian need to keep the website for Site B to be less expensive than Site A?

Site A > Site B
 $4.95m + 49.95 > 9.95m$
 $-4.95m \quad -4.95m$
 $49.95 > 5m$
 $\frac{49.95}{5} > \frac{5m}{5}$
 $9.99 > m$

10 months or more

13. For what values of x is the area of the rectangle greater than the perimeter?



$A > P$
 $b \cdot h >$ all sides added up

$7(x + 2) > 7 + 7 + x + 2 + x + 2$
 $7x + 14 > 18 + 2x$
 $-2x \quad -2x$
 $5x + 14 > 18$
 $-14 \quad -14$
 $5x > 4$
 $\frac{5x}{5} > \frac{4}{5}$
 $x > 0.8$