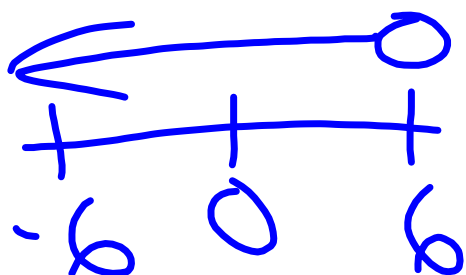# The Weakest Link

Directions: You start at $0. If you get a correct answer, you move up to the next level of money. You must then decide whether to bank that amount of money and then start back at the bottom of the scale, or risk that amount of money trying to reach a higher level. If you get an answer wrong, you automatically go back to the bottom of the scale without banking the cash. If you reach $3,200 that automatically banks and you start back at $0.
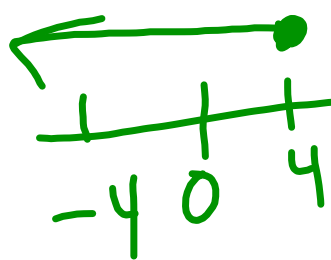
$3,200	$3,200
$1,600	$1,600
$800	$800
$400	$400
$200	$200
$100	$100
$50	$50
$0	$0

1. $k - 2 < 4$
$+2 \qquad +2$

$$k < 6$$

2. $-2 \geq w - 6$

$+6 \qquad +6$

$4 \geq w$

$w \leq 4$

3. $\dfrac{-10f}{-10} < \dfrac{10}{-10}$
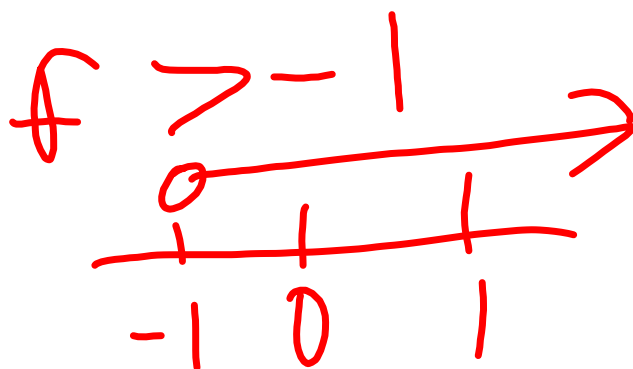
$$f \geq -1$$

4. $2h + 5 > 17$

$$\;\underline{-5}\qquad\underline{-5}$$

$$\frac{2h}{2} > \frac{12}{2}$$

$$h > 6$$

$$\int_0^{2\pi} \int_1^2 \int_0^{r\cos\theta+2} (r\sin\theta) r\, dz\, dr\, d\theta$$

$$\int_0^{2\pi} \int_1^2 r^2 \sin\theta (r\cos\theta + 2)\, dr\, d\theta$$

$$\int_0^{2\pi} \int_1^2 \frac{1}{2} r^3 \sin(2\theta) + 2r^2 \sin\theta\, dr\, d\theta$$

$$\int_0^{2\pi} \left(\frac{1}{8} r^4 \sin(2\theta) + \frac{2}{3} r^3 \sin\theta \right) \Big|_1^2 d\theta$$
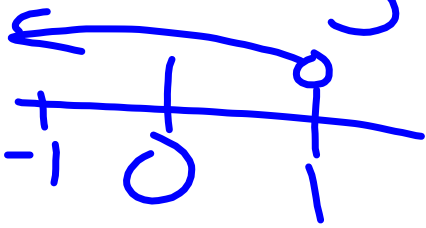
$$\int_0^{2\pi} \frac{15}{8} \sin(2\theta) + \frac{14}{3} \sin\theta\, d\theta$$

$$\left(-\frac{15}{16} \cos(2\theta) - \frac{14}{3} \cos\theta \right) \Big|_0^{2\pi}$$

$$0$$

5. $\cancel{6}\left(\dfrac{5x-3+4x}{\cancel{6}}\right) < (1)6$

$5x - 3 + 4x < 6$

$9x - 3 < 6$
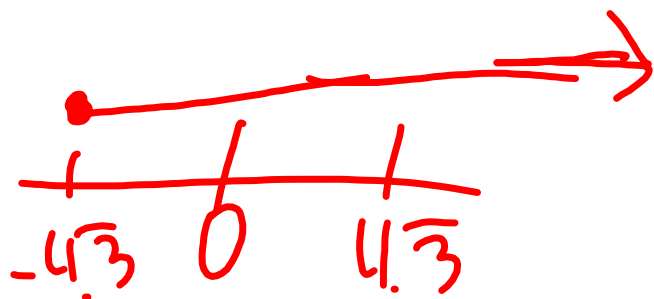
$+3 \phantom{<} +3$

$\dfrac{9x}{9} < \dfrac{9}{9}$

$\boxed{x < 1}$

6. $8 \geq -7n - 5 + 4n$

$8 \geq -3n - 5$

$+5 \qquad +5$

$13 \geq -3n$

$\dfrac{13}{-3} \geq \dfrac{-3n}{-3}$

$-4.\overline{3} \leq n$

$n \geq -4.\overline{3}$

(number line from -4.3 through 0 to 4.3, open point at -4.3 shaded right)

7. $-12(3z + 1) < -12(3z - 3)$

$-36z - 12 < -36z + 36$

$+36z \qquad +36z$

$-12 < 36$

$\mathbb{R}$

$$\xleftarrow{\hspace{2cm}}\xrightarrow{\hspace{2cm}}$$
$-5 \quad 0 \quad +5$

What holiday is celebrated in November?

8. $4(5g - 1) - 3g \geq -5(g - 4) + 108$

$$20g - 4 - 3g \geq -5g + 20 + 108$$

$$17g - 4 \geq -5g + 128$$

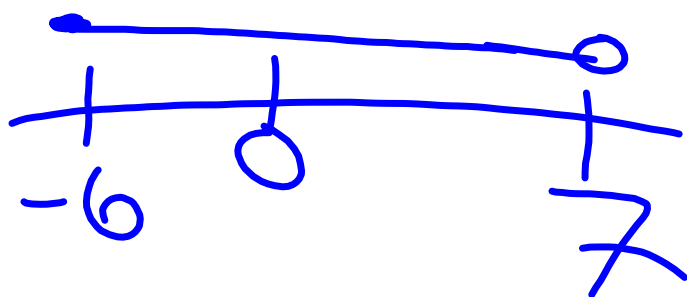$$+5g \qquad\qquad +5g$$

$$22g - 4 \geq 128$$

$$+4 \qquad\qquad +4$$

$$\frac{22g}{22} \geq \frac{132}{22}$$

$$\boxed{g \geq 6}$$

Who is the country music singer married to Faith Hill?

9. $u + 7 \geq 1$ and $u - 5 < 2$

$u \geq -6$ & $u < 7$

10. $-8 \le 2u+8 < 24$

11. $3 + v \leq -4$ or $-2v \leq 14$

12. $4 + v \leq -4$ or $-2v \leq 16$

13. Solve $|d - 5| > 10$.

14. $|m| \leq 4$

15. Solve $|p - 2| < 7$

16. At a track meet, the height of John's high jump was within 6 inches of the track record of 76 inches. What is the range of heights for John's jump?