A.REI.B.3: Solving Linear Inequalities 3

1 When $3a + 7b > 2a - 8b$ is solved for a, the result is
1) $a > -b$
2) $a < -b$
3) $a < -15b$
4) $a > -15b$

2 Given that $a > b$, solve for x in terms of a and b:
$$b(x - 3) \geq ax + 7b$$

3 Natasha is planning a school celebration and wants to have live music and food for everyone who attends. She has found a band that will charge her $750 and a caterer who will provide snacks and drinks for $2.25 per person. If her goal is to keep the average cost per person between $2.75 and $3.25, how many people, p, must attend?
1) $225 < p < 325$
2) $325 < p < 750$
3) $500 < p < 1000$
4) $750 < p < 1500$

4 David wanted to go on an amusement park ride. A sign posted at the entrance read "You must be greater than 42 inches tall and no more than 57 inches tall for this ride." Which inequality would model the height, x, required for this amusement park ride?
1) $42 < x \leq 57$
2) $42 > x \geq 57$
3) $42 < x$ or $x \leq 57$
4) $42 > x$ or $x \geq 57$

5 Students in a ninth grade class measured their heights, h, in centimeters. The height of the shortest student was 155 cm, and the height of the tallest student was 190 cm. Which inequality represents the range of heights?
1) $155 < h < 190$
2) $155 \leq h \leq 190$
3) $h \geq 155$ or $h \leq 190$
4) $h > 155$ or $h < 190$

6 The acidity in a swimming pool is considered normal if the average of three pH readings, p, is defined such that $7.0 < p < 7.8$. If the first two readings are 7.2 and 7.6, which value for the third reading will result in an overall rating of normal?
1) 6.2
2) 7.3
3) 8.6
4) 8.8

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Answer Section

1 ANS: 4

$a + 7b > -8b$

$a > -15b$

REF: 061913ai

2 ANS:

$b(x-3) \geq ax + 7b$

$bx - 3b \geq ax + 7b$

$bx - ax \geq 10b$

$x(b-a) \geq 10b$

$x \leq \frac{10b}{b-a}$

REF: 011631ai

3 ANS: 4

$\frac{750 + 2.25p}{p} > 2.75 \quad \frac{750 + 2.25p}{p} < 3.25$

$750 + 2.25p > 2.75p \quad 750 + 2.25p < 3.25p$

$750 > .50p \qquad 750 < p$

$1500 > p$

REF: 061524ai

4 ANS: 1 REF: 061910ai

5 ANS: 2 REF: 060821ia

6 ANS: 2

$7 < \frac{7.2 + 7.6 + p_L}{3}$ and $\frac{7.2 + 7.6 + p_H}{3} < 7.8$

$6.2 < p_L \qquad p_H < 8.6$

REF: 061607ai