

# Mathematics Contest of New Jersey - 2018

## Middle School Students ANSWER KEY:

### Non-Calculator Section.

1.  $\frac{5}{4}$  or  $1\frac{1}{4}$
2. IQR: 5.5 or  $11\frac{1}{2}$  or  $5\frac{1}{2}$
3. 35
4. B.  $-\frac{2}{3}$
5.  $x=1.66$
6.  $y = x+1$
7. 22.5 inches by 30 inches
8.  $\angle JAH=45^\circ$ ;  $\angle GAF=60^\circ$ .
9. **a)** 8 hrs for 48 t-shirts; **b)** 6 hrs. for 48 hats
10.  $-\frac{4}{3}$  or  $-1\frac{1}{3}$
11. The graph: The student shades to the right of  $x=-4$ ,  $x=-4$  is included (closed circle, bracket etc...)
12. **a)** Slope =  $\frac{1}{7}$  ; **b)** It would take 7 minutes to run 1 mile.
13. **A.** d or f; **B.** line a; **C.** line b; **D.** line c or b; **E.** line b; **F.** lines a and b  
**G.** lines c and e **H.**  $m = 5$

### Calculator Section.

14. \$56
15.  $3\frac{1}{6}$
16.  $h=7$
17. 23%
18. 5 and -9
19. **a)** 30%,  $\frac{15}{50}$ ,  $\frac{3}{10}$ ; **b)** About 16 orange M&Ms.
20. 18 times
21. No. You would need \$28 more to buy the cellphone.
22. 247