

Name: _____

Score: _____ /15

Homework 1 (Due Tues, May 13)

Math 1060Q – Summer 2014

Professor Hohn

Answer the following questions. Three questions will be chosen randomly to be graded.

Expand

For the following exercises, expand the given expression:

1. $(x + y - 1)(z + 2 - t)$

2. $(4a - 5)^2$

3. $(x + 1)(x - 2)(x + 3)$

4. $(t + 3)(t^2 - 3t + 9)$

Simplify

For the following exercises, simplify the expression as much as possible.

5. $\frac{3}{4} + \frac{5}{6}$

6. $\frac{3}{4} \cdot \frac{14}{13}$

7. $\frac{\frac{3}{4}}{\frac{5}{6}}$

$$8. \frac{n+1}{2} + \frac{3}{n}$$

$$9. \frac{2}{5} \cdot \frac{m+3}{7} + \frac{1}{2}$$

$$10. \frac{x-3}{4} - \frac{5}{y+2}$$

11. $\frac{4t+1}{t^2} + \frac{3}{t}$

12. $\frac{(x+a)^2 - x^2}{a}$

13. Suppose $b \neq 0$ and $d \neq 0$. Explain why

$$\frac{a}{b} - \frac{c}{d} = \frac{ad - bc}{bd}.$$

Solving for x

Find all values of x that satisfy the given equation.

14. $|2x - 8| = 18$

15. $\left| \frac{x+1}{x-1} \right| = 2$

16. $|x+1| + |x-2| = 7$

17. $|x + 3| = x + 3$

Intervals

Write each union as a single interval.

18. $[-8, -3) \cup [-6, -1)$

19. $(-\infty, 5] \cup [5, 8)$

20. $(3, \infty) \cup [1, 7]$

Write the set using interval notation.

21. $\{x \mid x \neq 0, 2\}$

22. $\{x \mid x < 3 \text{ or } x \geq 2\}$

23. $\{x \mid -2 < x < 2 \text{ or } x = 5\}$

Solving for x with inequalities

Find all values of x that satisfy the given equation.

24. $\frac{x-2}{3x+1} < 2$

25. $\left| \frac{4x + 1}{x + 3} \right| < 2$

26. Explain why the equation

$$|8x - 3| = -2$$

has no solutions.