NAME _____ DATE _____ Period ~~SCORE~~ _____

#1-22 ALL * Please show work on separate paper.

Solving Polynomial Inequalities

Find and graph the solution set of each inequality. (You may show graphs on this page)

1. $k(k - 5) > 0$ _____

2. $g^2 < 0$ _____

3. $a^2 + 3a \leq 0$ _____

4. $r^2 - 2r \geq 0$ _____

5. $y^2 + 6 < -7y$ _____

6. $f^2 + 5 < 6$ _____

7. $d^2 + 9 \geq 6d$ _____

8. $14 \leq p(p + 5)$ _____

9. $s^3 + 1 > 1$ _____

10. $t(t - 1)^2 < t - 2t^2$ _____

Solve.

11. $t^2 - (t + 2) < 0$ _____

12. $c^2 > 4c + 12$ _____

13. $(e + 5)^2 \geq 0$ _____

14. $w^2 - 8 \leq 8$ _____

15. $u(u + 3) > 3u$ _____

16. $z^2 + 20 < 8z + 5$ _____

17. $2(a^2 + a) \leq a$ _____

18. $4b^2 \leq 3b$ _____

19. $5q^2 + 2 > q + 2$ _____

20. $4(k^2 + k) > 3k + k^2$ _____

21. $h^2(h - 2) \leq 15h$ _____

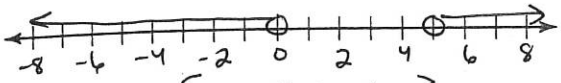
22. $x^3 \geq 2x(x + 4)$ _____

NAME Answers DATE _____ SCORE _____

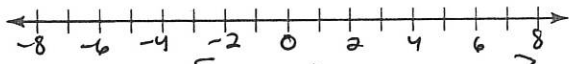
Solving Polynomial Inequalities

Find and graph the solution set of each inequality.

1. $k(k - 5) > 0$ $\{k: k<0 \text{ OR } k>5\}$

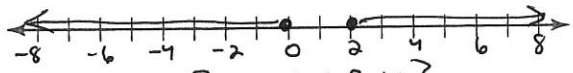


2. $g^2 < 0$ $\emptyset$

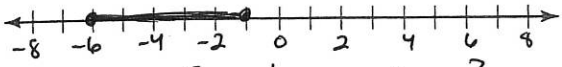


3. $a^2 + 3a \le 0$ $\{a: -3 \le a \le 0\}$

4. $r^2 - 2r \ge 0$ $\{r: r \le 0 \text{ OR } r \ge 2\}$



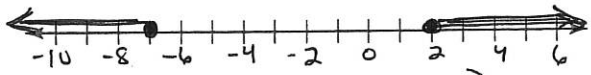
5. $y^2 + 6 < -7y$ $\{y: -6 < y < -1\}$



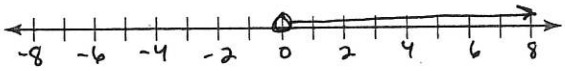
6. $f^2 + 5 < 6$ $\{f: -1 < f < 1\}$

7. $d^2 + 9 \ge 6d$ $\{\text{real numbers}\}$

8. $14 \le p(p + 5)$ $\{p: p \le -7 \text{ OR } p \ge 2\}$



9. $s^3 + 1 > 1$ $\{s: s > 0\}$



10. $t(t - 1)^2 < t - 2t^2$ $\{t: t < 0\}$

Solve.

11. $t^2 - (t + 2) < 0$ $\{t: -1 < t < 2\}$

12. $c^2 > 4c + 12$ $\{c: c < -2 \text{ OR } c > 6\}$

13. $(e + 5)^2 \ge 0$ $\{\text{real numbers}\}$

14. $w^2 - 8 \le 8$ $\{w: -4 \le w \le 4\}$

15. $u(u + 3) > 3u$ $\{u: u \ne 0\}$

16. $z^2 + 20 < 8z + 5$ $\{z: 3 < z < 5\}$

17. $2(a^2 + a) \le a$ $\{a: -\frac{1}{2} \le a \le 0\}$

18. $4b^2 \le 3b$ $\{b: 0 \le b \le \frac{3}{4}\}$

19. $5q^2 + 2 > q + 2$ $\{q: q < 0 \text{ OR } q > \frac{1}{5}\}$

20. $4(k^2 + k) > 3k + k^2$ $\{k: k < -\frac{1}{3} \text{ OR } k > 0\}$

21. $h^2(h - 2) \le 15h$ $\{h: h \le -3 \text{ OR } 0 \le h \le 5\}$

22. $x^3 \ge 2x(x + 4)$ $\{x: x \ge 4 \text{ OR } -2 \le x \le 0\}$