Secondary Math 2 Name_____

Final Exam Review

Date_____ Period____

For each of the following representations tell whether it is one of the following:
a) Linear **b) Exponential** **c) Quadratic** **d) Neither**

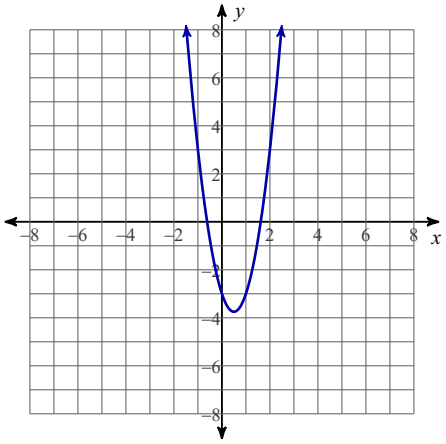
1) $f(x) = -8x - 9$

2) $f(x) = 2 \cdot \left(\frac{1}{5}\right)^x$

3) $f(x) = 3x^3 + 2x^2$

4) $f(x) = 2x^2 + 4x - 17$

5)



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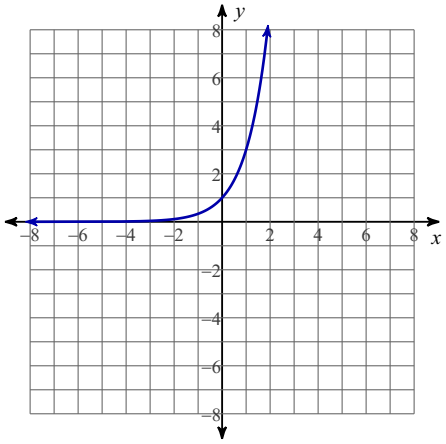

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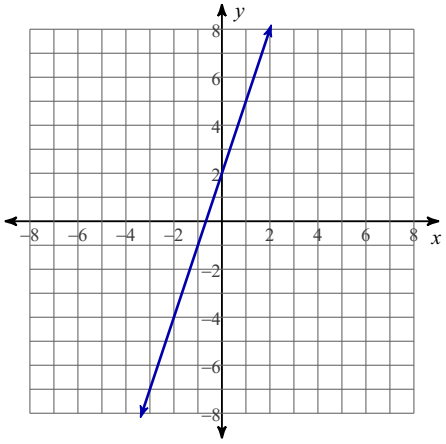


Simplify each expression.

8) $(3r - 4) - (4r - 3)$

A) $3r - 9$ B) $3r - 1$
C) $3r - 15$ D) $-r - 1$

9) $(7 + 4k^2) - (7k + 6) + (7k^2 - 1)$

A) $6k^2 - 7k$ B) $11k^2 - 7k$
C) $6k^2 - 6k$ D) $6k^2 - 6k + 6$

10) $(8 - 8x) - (2x - 7)$

A) $-10x + 21$ B) $-4x + 21$

C) $-10x + 15$ D) $-9x + 21$

11) $(7p - 6)(2p + 8)$

A) $14p^2 + 68p + 48$

B) $14p^2 + 44p - 48$

C) $14p^2 - 44p - 48$

D) $48p^2 - 14$

Evaluate each function.

12) $g(a) = 3a$; Find $g(-6)$

A) -18 B) 27

C) 18 D) -24

13) $p(a) = 4a - 2$; Find $p(5)$

A) -30 B) 22

C) 38 D) 18

14) $k(x) = 2x + 5$; Find $k(-9)$

A) 3 B) -13

C) -9 D) -15

Simplify.

15) $\sqrt{320k^4}$

A) $6\sqrt{2k}$ B) $8k\sqrt{7}$

C) $2k\sqrt{2k}$ D) $8k^2\sqrt{5}$

16) $\sqrt{28r}$

A) $10r\sqrt{r}$ B) $5\sqrt{2r}$

C) $2\sqrt{7r}$ D) $7r\sqrt{6r}$

17) $\sqrt{18x^4}$

A) $7x^2\sqrt{3}$ B) $12x$

C) $3x^2\sqrt{2}$ D) $4x\sqrt{3}$

18) $-2\sqrt{3} - \sqrt{5} - \sqrt{3}$

A) $-3\sqrt{3} - \sqrt{5}$ B) $-\sqrt{3}$

C) $-\sqrt{3} - \sqrt{5}$ D) $-2\sqrt{3}$

19) $-2\sqrt{3} + 2\sqrt{3} - 2\sqrt{3}$

A) $2\sqrt{3}$ B) $-2\sqrt{3}$

C) 0 D) $-4\sqrt{3}$

20) $-3\sqrt{2} - 3\sqrt{3} - 3\sqrt{3}$

A) $-3\sqrt{2} + 3\sqrt{3}$

B) $-3\sqrt{2}$

C) $-3\sqrt{2} - 6\sqrt{3}$

D) $-3\sqrt{2} - 3\sqrt{3}$

21) $\sqrt{10} \cdot \sqrt{2}$

A) $2\sqrt{5}$ B) $\sqrt{30}$
C) 20 D) $2\sqrt{3}$

22) $\sqrt{2} \cdot \sqrt{12}$

A) $\sqrt{30}$ B) 24
C) $2\sqrt{6}$ D) $\sqrt{14}$

23) $\sqrt{6} \cdot \sqrt{6}$

A) 6 B) $2\sqrt{3}$
C) 36 D) $\sqrt{30}$

Write each expression in exponential form.

24) $\left(\sqrt[3]{6x}\right)^2$

A) $(4x)^{\frac{5}{3}}$ B) $(2x)^{\frac{5}{6}}$
C) $(7x)^{\frac{5}{3}}$ D) $(6x)^{\frac{2}{3}}$

25) $\left(\sqrt[3]{10m}\right)^5$

A) $(10m)^{\frac{5}{3}}$ B) $(6m)^{\frac{4}{3}}$
C) $(10m)^{\frac{1}{2}}$ D) $(5m)^{\frac{7}{4}}$

26) $\sqrt{x}$

A) $(5x)^{\frac{2}{3}}$ B) $x^{\frac{1}{2}}$
C) $(10x)^{\frac{3}{2}}$ D) $(x^2)^{\frac{2}{5}}$

Write each expression in radical form.

27) $n^{\frac{4}{3}}$

A) $\left(\sqrt{7n}\right)^5$ B) $\left(\sqrt[3]{4n}\right)^2$
C) $\left(\sqrt[3]{n}\right)^4$ D) $\left(\sqrt[5]{2n}\right)^7$

28) $(10r)^{\frac{5}{4}}$

A) $\left(\sqrt[6]{10r}\right)^7$ B) $\sqrt[3]{r}$
C) $\left(\sqrt[3]{2r}\right)^4$ D) $\left(\sqrt[4]{10r}\right)^5$

29) $b^{\frac{1}{2}}$

A) $\sqrt{b}$ B) $\left(\sqrt{6b}\right)^3$
C) $\left(\sqrt{2b}\right)^5$ D) $\left(\sqrt{6b}\right)^5$

Simplify.

30) $(-7 + 3i) + 8 - (6i)$

A) $-15 - 3i$ B) $1 - 3i$
C) $1 + 3i$ D) $3i$

31) $(-2 + 4i) + (5 - 5i)$

A) $4 - i$ B) $3 - i$
C) $-7 - i$ D) $-7 + 9i$

32) $(8 - 3i)(-6 + 2i)$

A) $-27 + 9i$ B) $-42 + 34i$
C) $-54 - 2i$ D) $-48 + 36i$

33) $(6 + 2i)(3 + i)$

A) $-16 - 12i$ B) -20
C) $16 + 12i$ D) $-16 + 12i$

Solve each equation.
Methods: Factoring, completing the square, taking square roots, quadratic formula

34) $x^2 + x - 20 = 0$

A) $\{2, 4\}$ B) $\{-1, 7\}$
C) $\{5, 0\}$ D) $\{-5, 4\}$

35) $n^2 - 12n + 11 = 0$

A) $\{11, 1\}$
B) $\{3 + \sqrt{15}, 3 - \sqrt{15}\}$
C) $\{18, -2\}$
D) $\{-2, -18\}$

36) $r^2 - 5 = -5$

A) $\{0\}$ B) $\left\{\frac{7}{4}, -\frac{7}{4}\right\}$
C) $\{1, -1\}$ D) $\{8, -8\}$

37) $6x^2 - 11x - 30 = 0$

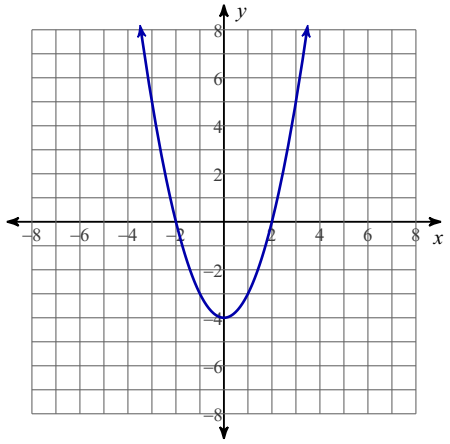
A) $\left\{\frac{11 + \sqrt{241}}{2}, \frac{11 - \sqrt{241}}{2}\right\}$
B) $\left\{\frac{-3 + i\sqrt{6}}{3}, \frac{-3 - i\sqrt{6}}{3}\right\}$
C) $\left\{\frac{10}{3}, -\frac{3}{2}\right\}$
D) $\left\{\frac{11 + i\sqrt{599}}{12}, \frac{11 - i\sqrt{599}}{12}\right\}$

38) $3v^2 - 75 = 0$

A) $\left\{\frac{-1 + \sqrt{17}}{2}, \frac{-1 - \sqrt{17}}{2}\right\}$
B) $\{5\sqrt{3}, -5\sqrt{3}\}$
C) $\{5i, -5i\}$
D) $\{5, -5\}$

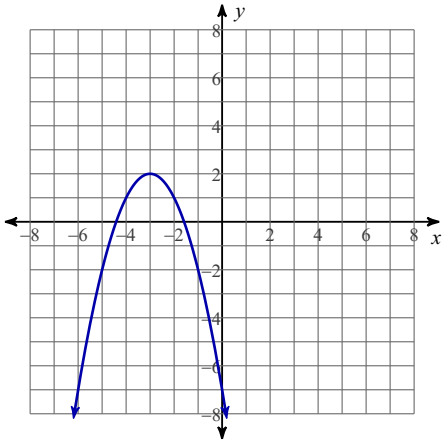
Select the correct equation for the graph. (Hint: What transformation is it?)

39)



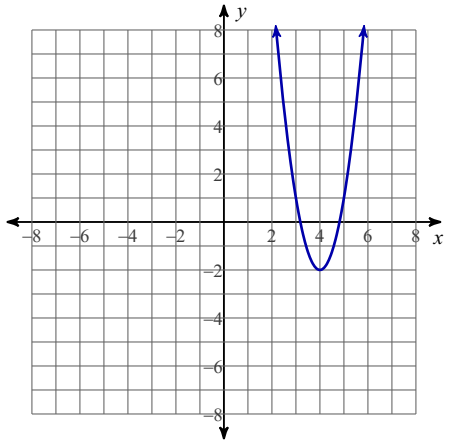
A) $y = x^2 - 4$
B) $y = (x - 4)^2$
C) $y = x^2 + 4$
D) $y = (x + 4)^2$

40)



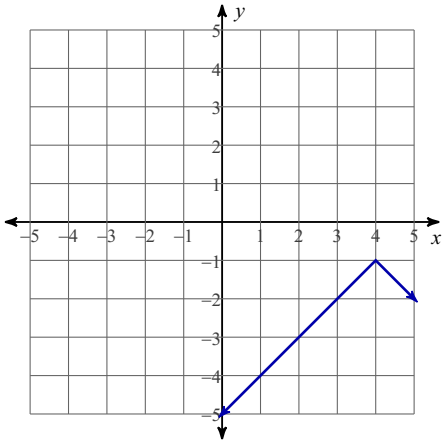
A) $y = -(x + 3)^2 - 2$
B) $y = -(x - 2)^2 - 3$
C) $y = -(x - 3)^2 + 2$
D) $y = -(x + 3)^2 + 2$

41)



A) $y = 3(x + 4)^2 + 2$
B) $y = \frac{1}{3}(x - 4)^2 - 2$
C) $y = 3(x - 4)^2 - 2$
D) $y = \frac{1}{3}(x - 4)^2 + 2$

42)



A) $-|x - 1| - 4$
B) $-|x + 4| - 1$
C) $-|x - 4| - 1$
D) $|x - 4| - 1$

Solve each equation.

43) $|k + 7| = 13$

A) $\{5, -17\}$
B) $\{9, 1\}$
C) $\{6, -20\}$
D) $\{5\}$

44) $|6x| = 12$

A) $\{7, -15\}$
B) $\{7\}$
C) $\{9, 3\}$
D) $\{2, -2\}$

45) $|2 + n| = 1$

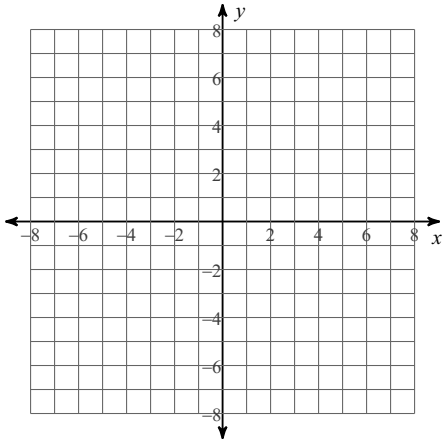
A) $\{3, -3\}$
B) $\{-1, -3\}$
C) $\{9, -27\}$
D) $\{9\}$

46) $\left|\frac{v}{7}\right| = 2$

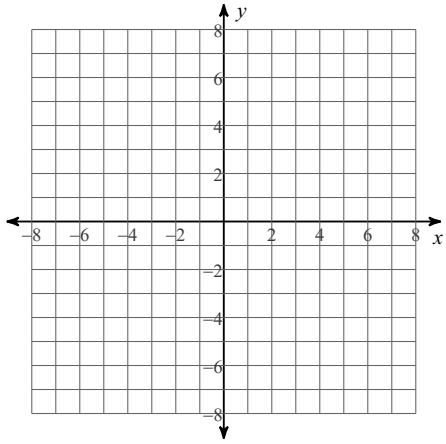
A) $\{2, -18\}$
B) $\{14, -14\}$
C) $\{5, -5\}$
D) $\{5\}$

Identify the center and radius of each. Then sketch the graph.

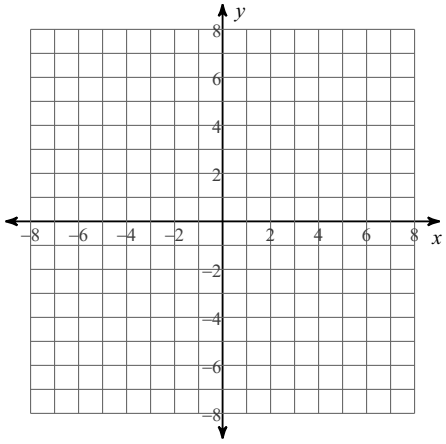
47) $(x+4)^2+(y-3)^2=8$



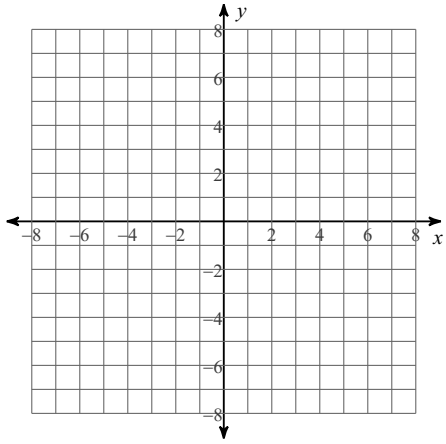
48) $x^2+(y+3)^2=9$



49) $(x-1)^2+(y-4)^2=4$



50) $(x-2)^2+(y-3)^2=9$



Use the information provided to write the standard form equation of each circle.

51) Center: $(13, -8)$
Radius: 3

52) Center: $(2, 11)$
Radius: 7