

Looking Back: Review 1

Date _____ Period _____

Find the discriminant of each quadratic equation then state the number and type of solutions.

1) $k^2 + 4k + 4 = 0$

- A) 12; one real solution
 B) 32; two real solutions
 C) 0; one real solution
 D) 0; two real solutions

2) $3v^2 + v + 18 = 10$

- A) 97; two real solutions
 B) 52; one real solution
 C) -95; two imaginary solutions
 D) 52; two real solutions

Simplify.

3) $(3x)^2 \cdot (x^2)^2$

4) $\frac{(2n)^3}{3n^3 \cdot 3n}$

5) $\frac{(2n^2)^3}{2n^3 \cdot 2n^2}$

6) $\frac{b^2}{a^4 \cdot -b^{-1}}$

Write each expression in exponential form.

7) $(\sqrt[4]{2x})^5$

8) $(\sqrt[3]{n})^2$

Simplify.

9) $\sqrt{200x^3}$

10) $\sqrt{80}$

11) $\sqrt{2}(\sqrt{3} - 2\sqrt{2})$

- A) -25 B) $\sqrt{30} + 3$
 C) $\sqrt{6} - 4$ D) $-4\sqrt{30} + 4$

12) $3\sqrt{10}(\sqrt{2} + 4\sqrt{10})$

- A) $25\sqrt{3} - 4\sqrt{30}$
 B) $2\sqrt{2} + 4$
 C) $16\sqrt{5} + 4$
 D) $6\sqrt{5} + 120$

Solve each equation. Remember to check for extraneous solutions.

13) $\sqrt{x+5} = 3$

14) $\sqrt{\frac{v}{5}} = 2$

15) $\sqrt{22-2n} = \sqrt{14-n}$

16) $\sqrt{-64+16x} = x$

Solve each equation by factoring.

17) $3b^2 - 6b = 0$

18) $a^2 + 6a + 5 = 0$

19) $x^2 + 16 = 10x$

20) $r^2 - 21 = -4r$

Simplify each expression.

21) $(5n^2 + 3n + n^4) - (5n^4 - 7n^2 + 5n)$

A) $-4n^4 + 13n^2 - 2n$

B) $-4n^4 + 6n^2 - 2n$

C) $-4n^4 + 12n^2 - 2n$

D) $-4n^4 + n^2 - 2n$

22) $(3r^3 - r^4 + 8r^2) + (2r^4 + 8r - 4r^3)$

A) $r^4 - 5r^3 + 17r^2 + 8r$

B) $r^4 - r^3 + 8r^2 + 8r$

C) $r^4 - r^3 + 15r^2 + 8r$

D) $r^4 - r^3 + 17r^2 + 8r$

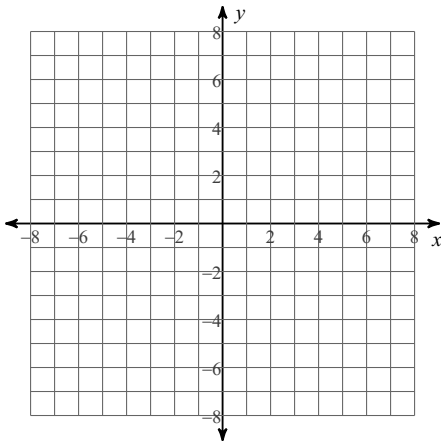
Simplify.

23) $(8 - 2i)(7 + 3i)$

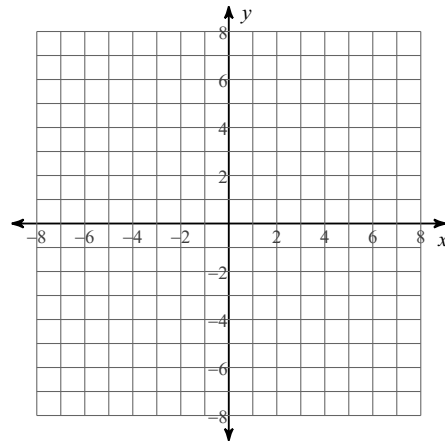
24) $(6 - 3i)^2$

Graph each function.

25) $f(x) = \frac{2}{x} + 3$



26) $f(x) = \frac{2}{x - 3}$



Find each product.

27) $(7n + 6)(4n - 3)$

28) $(3b - 4)(8b - 1)$

29) $(2x - 5)^2$

30) $(b - 1)(b + 1)$

31) $(7x - 4)(7x + 4)$

32) $(7v^2 + 3)^2$

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2) $3v^2 + v + 18 = 10$

- A) 97; two real solutions
 B) 52; one real solution
 *C) -95; two imaginary solutions
 D) 52; two real solutions

Simplify.

3) $(3x)^2 \cdot (x^2)^2$
 $9x^6$

4) $\frac{(2n)^3}{3n^3 \cdot 3n} \cdot \frac{8}{9n}$

5) $\frac{(2n^2)^3}{2n^3 \cdot 2n^2}$
 $2n$

6) $\frac{b^2}{a^4 \cdot -b^{-1}} - \frac{b^3}{a^4}$

Write each expression in exponential form.

7) $(\sqrt[4]{2x})^5$
 $(2x)^{\frac{5}{4}}$

8) $(\sqrt[3]{n})^2$
 $n^{\frac{2}{3}}$

Simplify.

9) $\sqrt{200x^3}$
 $10x\sqrt{2}$

10) $\sqrt{80}$
 $4\sqrt{5}$

11) $\sqrt{2}(\sqrt{3} - 2\sqrt{2})$

- A) -25 B) $\sqrt{30} + 3$
 *C) $\sqrt{6} - 4$ D) $-4\sqrt{30} + 4$

12) $3\sqrt{10}(\sqrt{2} + 4\sqrt{10})$

- A) $25\sqrt{3} - 4\sqrt{30}$
 B) $2\sqrt{2} + 4$
 C) $16\sqrt{5} + 4$
 *D) $6\sqrt{5} + 120$

Solve each equation. Remember to check for extraneous solutions.

13) $\sqrt{x+5} = 3$
 $\{4\}$

14) $\sqrt{\frac{v}{5}} = 2$
 $\{20\}$

15) $\sqrt{22-2n} = \sqrt{14-n}$
 $\{8\}$

16) $\sqrt{-64+16x} = x$
 $\{8\}$

Solve each equation by factoring.

17) $3b^2 - 6b = 0$

$\{2, 0\}$

19) $x^2 + 16 = 10x$

$\{2, 8\}$

18) $a^2 + 6a + 5 = 0$

$\{-5, -1\}$

20) $r^2 - 21 = -4r$

$\{-7, 3\}$

Simplify each expression.

21) $(5n^2 + 3n + n^4) - (5n^4 - 7n^2 + 5n)$

A) $-4n^4 + 13n^2 - 2n$

B) $-4n^4 + 6n^2 - 2n$

*C) $-4n^4 + 12n^2 - 2n$

D) $-4n^4 + n^2 - 2n$

22) $(3r^3 - r^4 + 8r^2) + (2r^4 + 8r - 4r^3)$

A) $r^4 - 5r^3 + 17r^2 + 8r$

*B) $r^4 - r^3 + 8r^2 + 8r$

C) $r^4 - r^3 + 15r^2 + 8r$

D) $r^4 - r^3 + 17r^2 + 8r$

Simplify.

23) $(8 - 2i)(7 + 3i)$

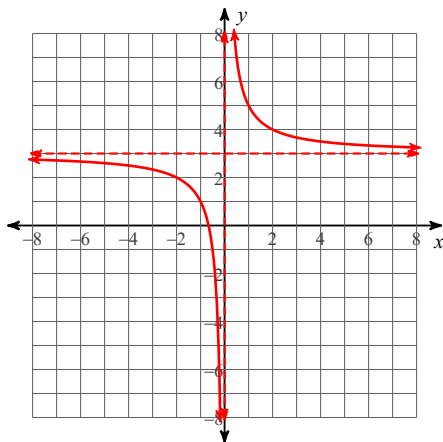
$62 + 10i$

24) $(6 - 3i)^2$

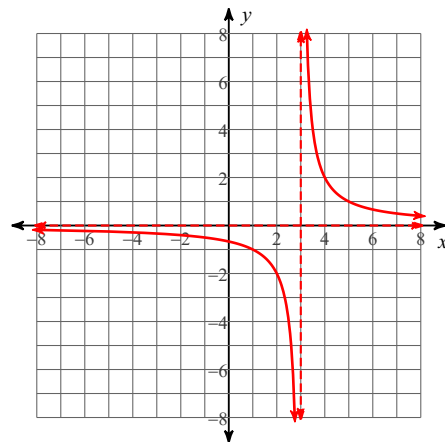
$27 - 36i$

Graph each function.

25) $f(x) = \frac{2}{x} + 3$



26) $f(x) = \frac{2}{x - 3}$



Find each product.

27) $(7n + 6)(4n - 3)$

$28n^2 + 3n - 18$

28) $(3b - 4)(8b - 1)$

$24b^2 - 35b + 4$

29) $(2x - 5)^2$

$4x^2 - 20x + 25$

30) $(b - 1)(b + 1)$

$b^2 - 1$

31) $(7x - 4)(7x + 4)$

$49x^2 - 16$

32) $(7v^2 + 3)^2$

$49v^4 + 42v^2 + 9$