Sec 3 Name_____

Final Review 3

Period____

Simplify. Your answer should contain only positive exponents.

1) $\dfrac{(2x)^{-3} \cdot 2x^{-1}y^{-4}}{2yx^{4}}$

2) $\dfrac{2uv \cdot u^{3}v^{2}}{(v^{3})^{-2} \cdot 2u^{-2}}$

Simplify.

3) $(4 - 4i) - (-6 + 8i)$

4) $(-5 + 2i)(7 + i)$

5) $\sqrt{80}$

6) $\sqrt{175}$

Find the inverse of each function.

7) $f(x) = 7x - 3$

8) $f(x) = \sqrt[3]{x - 1} - 2$

9) $g(x) = \sqrt[3]{\dfrac{x - 1}{2}}$

State if the given functions are inverses.

10) $f(x) = -7x - 5$

$g(x) = \dfrac{-x - 5}{7}$

Rewrite each equation in exponential form.

11) $\log_{12} 144 = 2$

Rewrite each equation in logarithmic form.

12) $16^2 = 256$

Solve each equation. Round your answers to the nearest ten-thousandth.

13) $16^n - 5 = 73$

14) $17^x + 8 = 60$

Solve each equation by factoring.

15) $n^2 + 3n - 10 = 0$

16) $m^2 + 8m = 0$

17) $7n^2 + 5n = 0$

18) $3x^2 - 10x + 8 = 0$

Factor each completely.

19) $9m^2 - 16$

20) $25x^2 - 40x + 16$

Find all roots.

21) $x^3 - 3x^2 - 4x = 0$

22) $x^3 + 2x^2 + 5x = 0$

Simplify each expression.

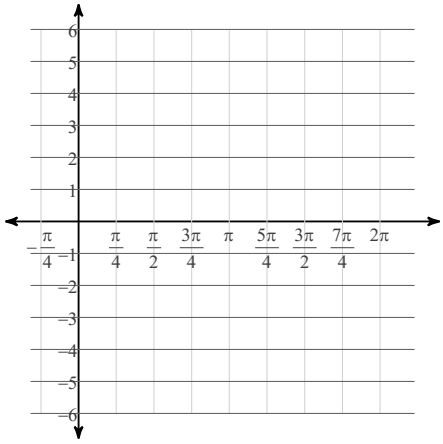
23) $\dfrac{v-3}{v^2-9}$

24) $\dfrac{x+6}{3x} \cdot \dfrac{3x^2-6x}{x^2+4x-12}$

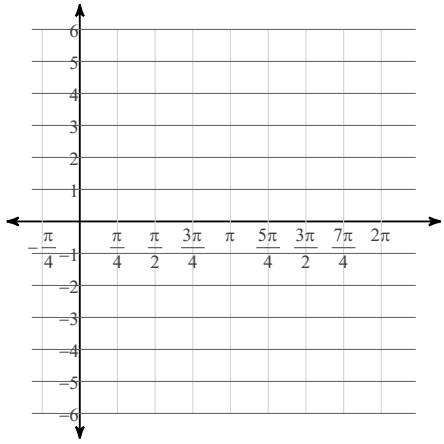
25) $\dfrac{1}{7a^2} \div \dfrac{2a-14}{a^2-2a-35}$

Graph each function using radians.

26) $y = 4\cos 2\theta + 1$

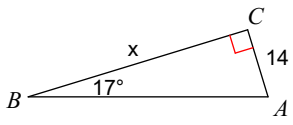


27) $y = 3\sin 4\theta - 1$



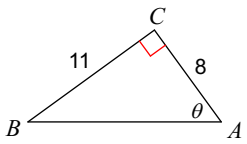
Find the measure of each side indicated. Round to the nearest tenth.

28)



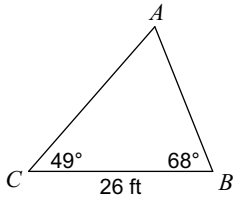
Find the measure of each angle indicated. Round to the nearest tenth.

29)

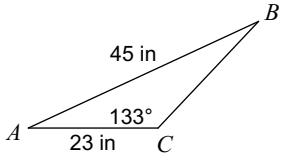


Find each measurement indicated. Round your answers to the nearest tenth.

30) Find AB



31) Find $m\angle B$



Perform the indicated operation.

32) $f(n) = 4n - 2$
$g(n) = n^3 + 3n$
Find $f(n) + g(n)$

33) $f(n) = 3n + 3$
$g(n) = 4n - 1$
Find $f(n) - g(n)$

34) $g(x) = -4x - 4$
$h(x) = x - 1$
Find $g(x) \cdot h(x)$

35) $g(x) = 2x - 4$
$h(x) = 4x + 3$
Find $g(h(x))$

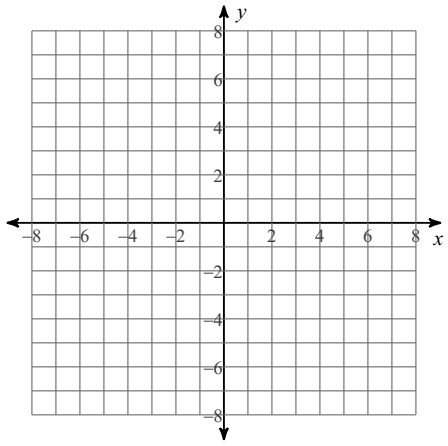
State if each scenario involves a permutation or a combination. Then find the number of possibilities.

36) A group of 35 people are going to run a race. The top three runners earn gold, silver, and bronze medals.

37) A team of 17 lacrosse players needs to choose two players to refill the water cooler.

Show long division and graph.

38)



$x + 3\sqrt{x^3 + 4x^2 - 17x - 60}$

Factor each. One root has been given.

39) $x^4 - 11x^3 + 37x^2 - 19x - 68 = 0;\ 4 + i$

Final Review 3

Simplify. Your answer should contain only positive exponents.

1) $\dfrac{(2x)^{-3}\cdot 2x^{-1}y^{-4}}{2yx^{4}}$

$\dfrac{1}{2^3x^3\times x^4y^4y}$

$\dfrac{1}{8x^8y^5}$

2) $\dfrac{2uv\cdot u^3v^2}{(v^3)^{-2}\cdot 2u^{-2}}$

Simplify.

3) $(4-4i)-(-6+8i)$

$4-4i+6-8i$

$10-12i$

4) $(-5+2i)(7+i)$

$-35-5i+14i+2i^2$ $(i^2=-1)$

$-35+9i+-2$

$-37+9i$

5) $\sqrt[3]{80}$

$8\cdot 10$

$2\cdot 4\cdot 2\cdot 5$

$2\cdot 2\sqrt{5}$

$4\sqrt{5}$

6) $\sqrt{175}$

Find the inverse of each function. switch & solve

7) $f(x)=7x-3$

$y=7x-3$

$x=7y-3$

$+3\quad +3$

$\dfrac{x+3}{7}=\dfrac{7y}{7}$

$\dfrac{1}{7}x+\dfrac{3}{7}$

8) $f(x)=\sqrt[3]{x-1}-2$

9) $g(x)=\sqrt[3]{\dfrac{x-1}{2}}$

State if the given functions are inverses.

10) $f(x)=-7x-5$

$g(x)=\dfrac{-x-5}{7}$

Rewrite each equation in exponential form.

11) $\log_{12} 144 = 2$

$12^2 = 144$ ✓

Rewrite each equation in logarithmic form.

12) $16^2 = 256$

$\log_{16} 256 = 2$

Solve each equation. Round your answers to the nearest ten-thousandth. .0060

13) $16^n - 5 = 73$

$+5 \quad +5$

$16^n = 78 \rightarrow \log_{16} 78 = n$

$n = 1.5714$

14) $17^x + 8 = 60$

Solve each equation by factoring.

15) $n^2 + 3n - 10 = 0$

16) $m^2 + 8m = 0$

17) $7n^2 + 5n = 0$

$n(7n+5) = 0$

$n = 0, \quad -\frac{5}{7}$

$7n + 5 = 0$

$-5 \quad -5$

$\frac{7n}{7} = \frac{-5}{7}$

$n = -\frac{5}{7}$

18) $3x^2 - 10x + 8 = 0$

$3x - 4$

$x \quad 3x^2 \quad -4x$

$-2 \quad -6x \quad 8$

24, -6, -4, -10

$(3x-4)(x-2)$

$x = \frac{4}{3}, 2$

Factor each completely.

19) $9m^2 - 16$

20) $25x^2 - 40x + 16$

$(5x)^2 \quad 4^2$

$(5x-4)(5x-4)$

$(5x-4)^2$

Find all roots.

21) $x^3 - 3x^2 - 4x = 0$

22) $x^3 + 2x^2 + 5x = 0$

$x(1x^2 + 2x + 5)$

$a \quad b \quad c$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$x = \frac{-2 \pm \sqrt{2^2 - 4(1)(5)}}{2(1)}$

5, 2, CAN'T

$\sqrt{4 \cdot 20}$

$\sqrt{-16}$

$\pm 4i$

$= \frac{-2 \pm 4i}{2}$

$= -1 \pm 2i$

$0, \; -1+2i, \; -1-2i$

Simplify each expression.

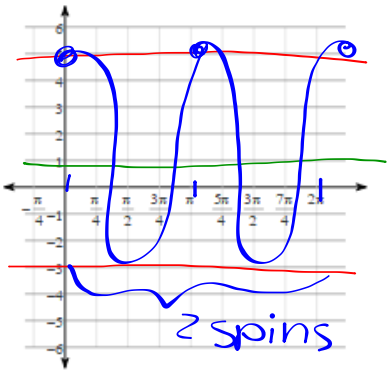
23) $\frac{v-3}{v^2-9}$ → $\frac{v-3}{(x+3)(x-3)} = \frac{1}{x+3}$

24) $\frac{x+6}{3x} \cdot \frac{3x^2-6x}{x^2+4x-12}$

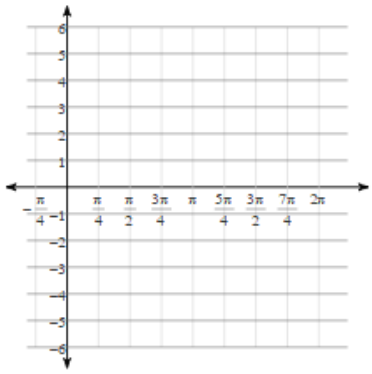
25) $\frac{1}{7a^2} \div \frac{2a-14}{a^2-2a-35}$

Graph each function using radians.

26) $y = 4\cos 2\theta + 1$

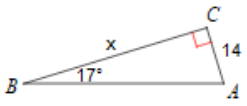


27) $y = 3\sin 4\theta - 1$



Find the measure of each side indicated. Round to the nearest tenth.

28)



Find the measure of each angle indicated. Round to the nearest tenth.

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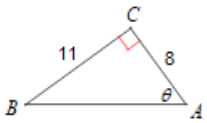
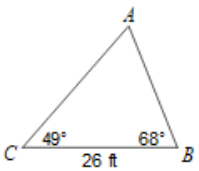


Find each measurement indicated. Round your answers to the nearest tenth.

30) Find AB



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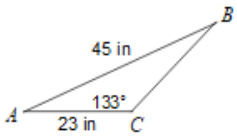

Perform the indicated operation.

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Find $f(n) + g(n)$

33) $f(n) = 3n + 3$
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$h(x) = x - 1$
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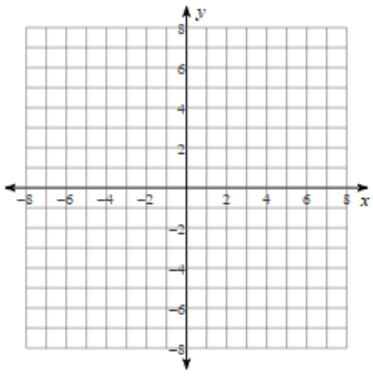
State if each scenario involves a permutation or a combination. Then find the number of possibilities.

36) A group of 35 people are going to run a race. The top three runners earn gold, silver, and bronze medals.

37) A team of 17 lacrosse players needs to choose two players to refill the water cooler.

Show long division and graph.

38)



$x + 3\sqrt{x^3 + 4x^2 - 17x - 60}$

Factor each. One root has been given.

39) $x^4 - 11x^3 + 37x^2 - 19x - 68 = 0;\ 4 + i$

on next page

$x^4 - 11x^3 + 37x^2 - 19x - 68$, $(4+i)$ using $(4-i)$

$x^2 - 8x + 17 \overline{)\, x^4 - 11x^3 + 37x^2 - 19x - 68}$

$x^2 - 3x - 4$

$-x^4 + 8x^3 - 17x^2$

$-3x^3 + 20x^2 - 19x - 68$

$+3x^3 + 24x^2 + 51x$

$-4x^2 + 32x - 68$

$+4x^2 + 32x + 68$

0

$(x^2 - 8x + 17)$

$(x - 4 + i)(x - 4 - i)$

x	x^2	$-4x$	$-xi$
-4	$-4x$	16	$4i$
i	xi	$-4i$	1

$-i^2$

$-(-1)$

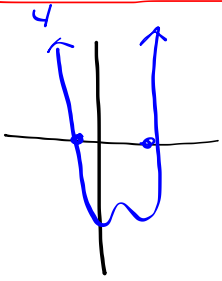
$=1$

$1 \quad -4 \quad -4$

-3

$(x+1)(x-4)(x-4+i)(x-4-i)$

$-1 \quad 4$ NO Touch



Perform the indicated operation.

32) $f(n) = 4n - 2$
$g(n) = n^3 + 3n$
Find $f(n) + g(n)$

$n^3 + 7n - 2$

33) $f(n) = 3n + 3$
$g(n) = 4n - 1$
Find $f(n) - g(n)$

$-n + 4$

34) $g(x) = -4x - 4$
$h(x) = x - 1$
Find $g(x) \cdot h(x)$

$-4x^2 + 4$

35) $g(x) = 2x - 4$
$h(x) = 4x + 3$
Find $g(h(x))$

$8x + 2$

State if each scenario involves a permutation or a combination. Then find the number of possibilities.

36) A group of 35 people are going to run a race. The top three runners earn gold, silver, and bronze medals.

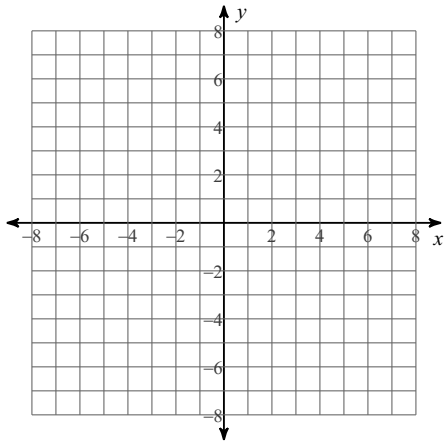
Permutation; 39,270

37) A team of 17 lacrosse players needs to choose two players to refill the water cooler.

Combination; 136

Show long division and graph.

38)



$x + 3\sqrt{x^3 + 4x^2 - 17x - 60}$

Factor each. One root has been given.

39) $x^4 - 11x^3 + 37x^2 - 19x - 68 = 0;\ 4 + i$

$(x + 1)(x - 4)(x^2 - 8x + 17) = 0$

Sec 3 Name_____

Final Review 3

Period____

Simplify. Your answer should contain only positive exponents.

1) $\dfrac{(2x)^{-3} \cdot 2x^{-1}y^{-4}}{2yx^{4}}$

$\dfrac{1}{8x^{8}y^{5}}$

2) $\dfrac{2uv \cdot u^{3}v^{2}}{(v^{3})^{-2} \cdot 2u^{-2}}$

$v^{9}u^{6}$

Simplify.

3) $(4 - 4i) - (-6 + 8i)$

$10 - 12i$

4) $(-5 + 2i)(7 + i)$

$-37 + 9i$

5) $\sqrt{80}$

$4\sqrt{5}$

6) $\sqrt{175}$

$5\sqrt{7}$

Find the inverse of each function.

7) $f(x) = 7x - 3$

$f^{-1}(x) = \dfrac{1}{7}x + \dfrac{3}{7}$

8) $f(x) = \sqrt[3]{x - 1} - 2$

$f^{-1}(x) = (x + 2)^{3} + 1$

9) $g(x) = \sqrt[3]{\dfrac{x - 1}{2}}$

$g^{-1}(x) = 2x^{3} + 1$

State if the given functions are inverses.

10) $f(x) = -7x - 5$

$g(x) = \dfrac{-x - 5}{7}$

Yes

Rewrite each equation in exponential form.

11) $\log_{12} 144 = 2$

$12^2 = 144$

Rewrite each equation in logarithmic form.

12) $16^2 = 256$

$\log_{16} 256 = 2$

Solve each equation. Round your answers to the nearest ten-thousandth.

13) $16^n - 5 = 73$

1.5714

14) $17^x + 8 = 60$

1.3946

Solve each equation by factoring.

15) $n^2 + 3n - 10 = 0$

$\{2, -5\}$

16) $m^2 + 8m = 0$

$\{-8, 0\}$

17) $7n^2 + 5n = 0$

$\left\{-\frac{5}{7}, 0\right\}$

18) $3x^2 - 10x + 8 = 0$

$\left\{\frac{4}{3}, 2\right\}$

Factor each completely.

19) $9m^2 - 16$

$(3m + 4)(3m - 4)$

20) $25x^2 - 40x + 16$

$(5x - 4)^2$

Find all roots.

21) $x^3 - 3x^2 - 4x = 0$

$\{0, -1, 4\}$

22) $x^3 + 2x^2 + 5x = 0$

$\{0, -1 + 2i, -1 - 2i\}$

Simplify each expression.

23) $\dfrac{v-3}{v^2-9}$

$\dfrac{1}{v+3}$

24) $\dfrac{x+6}{3x} \cdot \dfrac{3x^2-6x}{x^2+4x-12}$

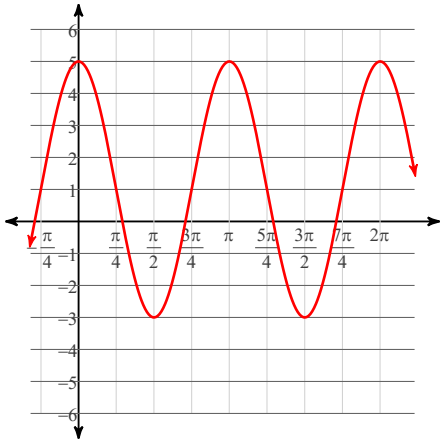
1

25) $\dfrac{1}{7a^2} \div \dfrac{2a-14}{a^2-2a-35}$

$\dfrac{a+5}{14a^2}$

Graph each function using radians.

26) $y = 4\cos 2\theta + 1$



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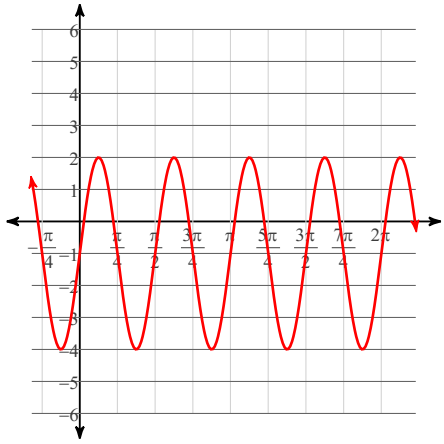
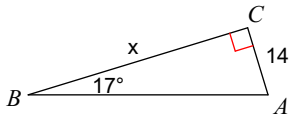


Find the measure of each side indicated. Round to the nearest tenth.

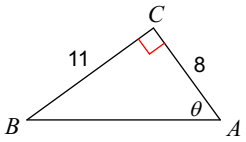
28)



45.8

Find the measure of each angle indicated. Round to the nearest tenth.

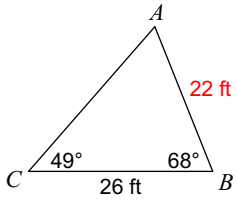
29)



54°

Find each measurement indicated. Round your answers to the nearest tenth.

30) Find AB



31) Find $m\angle B$