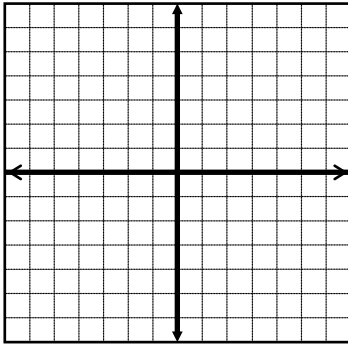


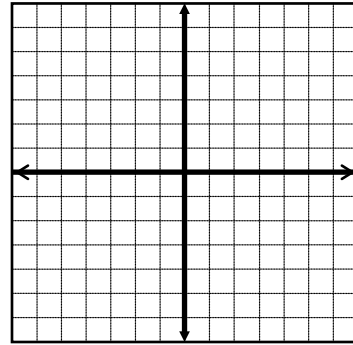
Cumulative Review B

Graph.

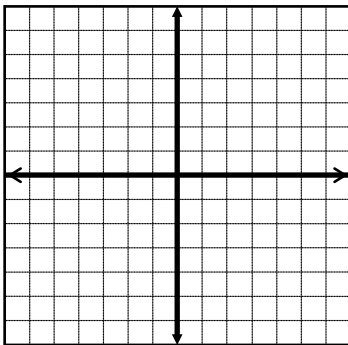
1) $f(x) = -\frac{1}{2}\sqrt{x-1} + 3$



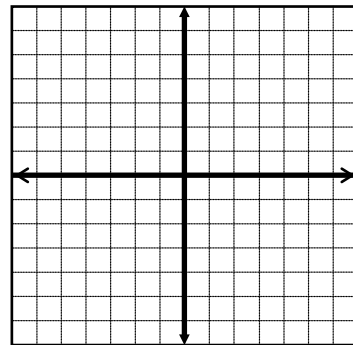
2) $f(x) = \frac{x+1}{x^2-3x-4}$



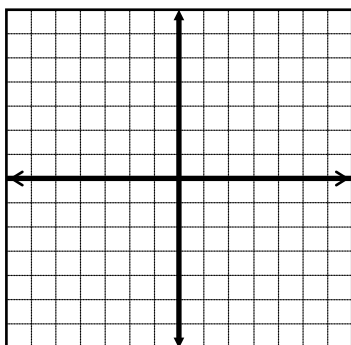
3) $f(x) = 2\left(\frac{1}{3}\right)^x - 3$



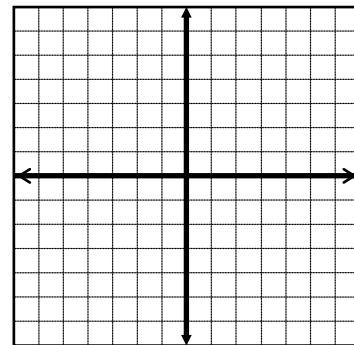
4) $f(x) = \frac{1}{2}(x-1)^3 + 2$



5) $f(x) = \frac{2x^2 + x - 1}{x + 2}$



6) $f(x) = \log_4(x+3) + 2$



Find the exact value of the expression if possible. Do not use a calculator.

7) $\sin^{-1}\left[\tan\left(\frac{3\pi}{4}\right)\right]$

8) $\cot\left[\sin^{-1}\left(-\frac{\sqrt{3}}{5}\right)\right]$

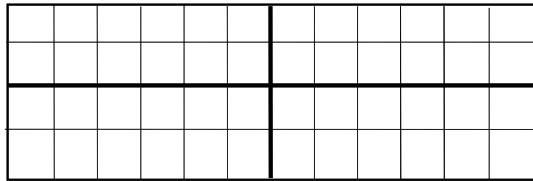
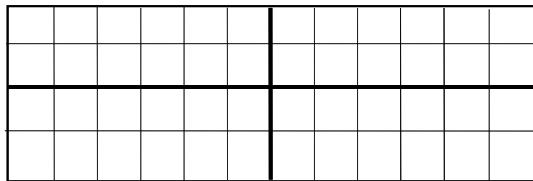
Graph one or more periods. Be sure to label all units.

9) $y = \sec(2x + \pi) - 1$

amplitude = _____

period = _____

shift = _____

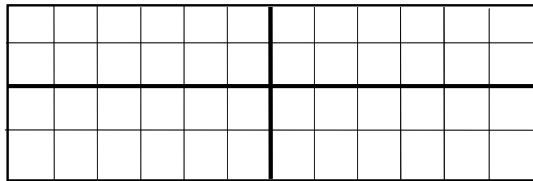
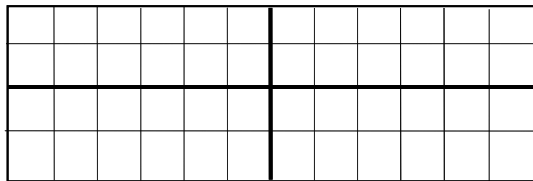


10) $y = -\tan\left(\frac{x}{2} - \frac{\pi}{2}\right) + 1$

amplitude = _____

period = _____

shift = _____



Find the exact value. You may use any of your formulas.

11) $\cos\frac{11\pi}{12}$

12) $\tan 157.5^\circ$

Find all solutions in the interval $[0, 2\pi)$.

13) $2 - 2\cos^2 x = \sin x + 1$

14) $4 \cot x = \cot x \sin^2 x$

Solve each triangle below. Round all side lengths to the nearest tenth and all angle measures to the nearest degree.

15) $a = 15, b = 19, c = 12$

16) $C = 43^\circ, c = 25, b = 28$

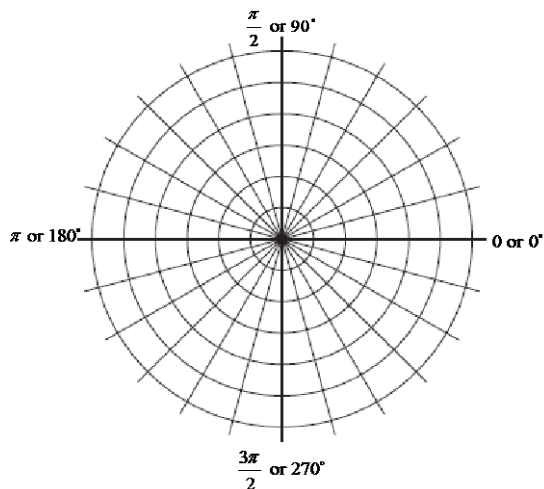
Solve. Round answer to the nearest tenth of a mile and nearest degree.

17) A plane leaves an airport at a heading of $N48^\circ W$ for 112. It then changes course and heads $N13^\circ E$ for 93 miles and lands at a new airport. What is the distance from original airport to the new airport? Round to the nearest tenth of a mile.

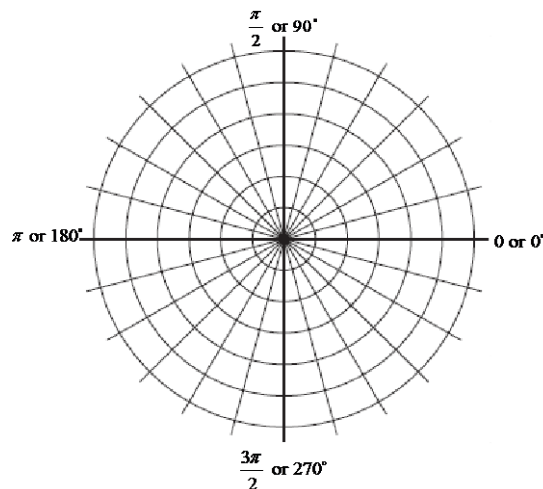
18) The magnitude and direction of two forces acting on an object are 40 pounds, $N54^\circ E$, and 25 pounds, $S53^\circ E$, respectively. Find the magnitude and the direction angle of the resultant force.

Graph.

19) $r = -4 \sin 3\theta$



20) $r = 1 - 3 \cos \theta$



Find the indicated operations of the following complex numbers in polar form.

$$z_1 = 4 \left(\cos \frac{\pi}{3} + i \sin \frac{\pi}{3} \right) \quad z_2 = 3 \left(\cos \frac{2\pi}{5} + i \sin \frac{2\pi}{5} \right)$$

21) $z_1 \bullet z_2$

22) $\sqrt[3]{z_2}$

Write the following complex numbers in their alternate form.

23) $7 \left(\cos \frac{5\pi}{6} + i \sin \frac{5\pi}{6} \right)$ to rectangular

24) $-3 + 3i$ to polar

Given $\mathbf{u} = 5\mathbf{i} - 6\mathbf{j}$ and $\mathbf{v} = 7\mathbf{i} + 2\mathbf{j}$, find the following.

25) $\|2\mathbf{u} - 3\mathbf{v}\|$

26) Find the angle between \mathbf{u} and \mathbf{v} .