

Arithmetic & Geometric Sequences – Write an equation representing the information in each table.

24.

x	0	1	2	3	4	5
y	-4	-8	-16	-32	-64	-128

$$y = -4(2)^x$$

25.

x	0	1	2	3	4	5
y	5	12	19	26	33	40

$$y = 5 + 7x$$

26.

x	-2	-1	0	1	2	3
y	24	19	14	9	4	-1

$$y = 14 - 5x$$

27.

x	2	3	4	5	6	7
y	8	9	10	11	12	13

$$y = 6 + x$$

28.

x	1	2	3	4	5	6
y	5	15	45	135	405	1215

$$y = \frac{5}{3}(3)^x$$

29.

x	-2	-1	0	1	2	3
y	10	5	$\frac{5}{2}$	$\frac{5}{4}$	$\frac{5}{8}$	$\frac{5}{16}$

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

15.

x	0	1	2	3	4	5
y	-4	-8	-12	-16	-20	-24

$$y = -4 - 4x$$

16.

x	0	1	2	3	4	5
y	48	24	12	6	3	1.5

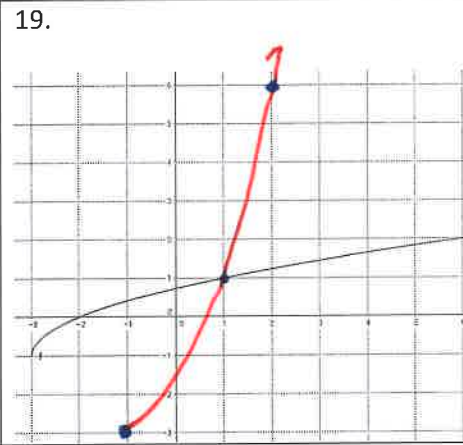
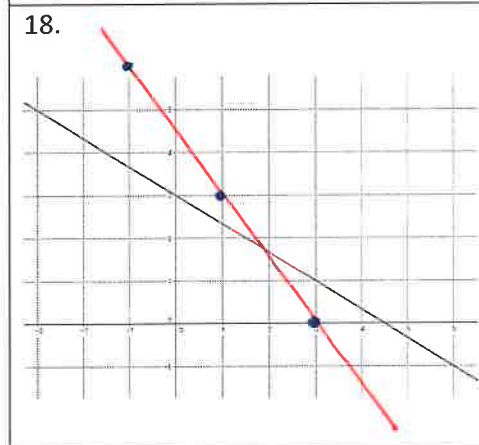
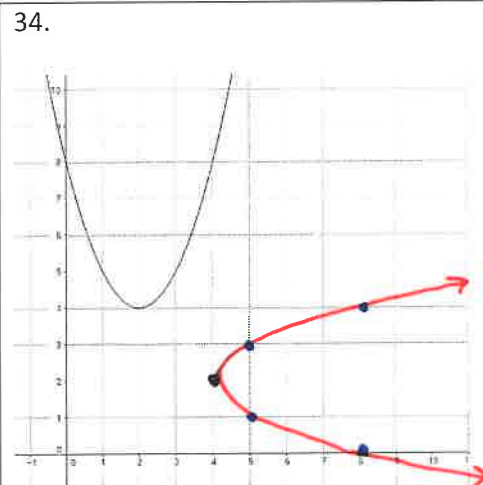
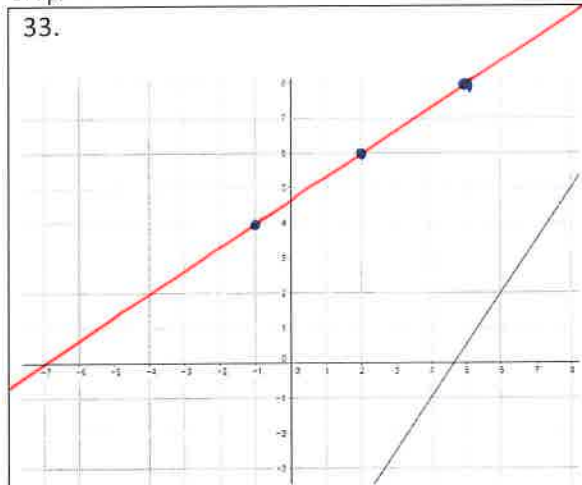
$$y = 48\left(\frac{1}{2}\right)^x$$

17.

x	-2	-1	0	1	2	3
y	78	80	82	84	86	88

$$y = 82 + 2x$$

Graph the inverse of each function.



Determine the inverse of each function.

30. $f(x) = \frac{3}{2}x - 7$

$$y = \frac{3}{2}x - 7$$

$$\hookrightarrow x = \frac{2}{3}y - 7$$

$$y = \frac{2x + 14}{3} \text{ or } \frac{2}{3}x + \frac{14}{3}$$

OR OTHERS OPTIONS

31. $g(x) = \sqrt{x + 5}$

$$y = \sqrt{x + 5}$$

$$\hookrightarrow x = \sqrt{y + 5}$$

$$y = x^2 - 5$$

32. $h(x) = (x - 2)^2 + 9$

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

$$\hookrightarrow x = (y - 2)^2 + 9$$

$$y = \pm \sqrt{x - 9} + 2$$

9. $f(x) = -\frac{1}{4}x + 3$

$$y = -4x + 12$$

10. $g(x) = \sqrt{2x - 1}$

$$y = \frac{x^2 + 1}{2}$$

11. $h(x) = (x + 11)^2 + 5$

$$y = -11 \pm \sqrt{x - 5}$$

Solve Literal Equation with a common variable in two terms.

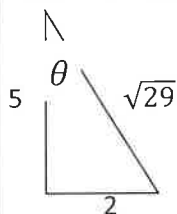
4. Solve $y = mx + b$ for x .	5. Solve $A = \frac{1}{2}bh$ for h .	6. Solve $Ax + By = C$ for A .
$x = \frac{y-b}{m}$	$h = \frac{2A}{b}$	$A = \frac{C-By}{x}$
7. Solve $Fm + Fb = a$ for F . $F(m+b) = a$	8. Solve $\pi r^2 + 2\pi rh = A$ for π . $\pi(r^2 + 2rh) = A$	9. Solve $pb - yps = br$ for p .
$F = \frac{a}{m+b}$	$\pi = \frac{A}{r^2 + 2rh}$	$p = \frac{br}{b-ys}$
10. Solve $sr + tr = u$ for r .	11. Solve $y = mx + b$ for b .	12. Solve $y = mx + b$ for m .
$r = \frac{u}{s+t}$	$b = y - mx$	$m = \frac{y-b}{x}$
13. Solve $Ax + By = C$ for y .		
$y = \frac{C-Ax}{B}$		

Transformations

1. $y = x $	2. $f(x) = (x)^2$	3. $y = (x+2)^2 - 3$
1. $y = - x+3 $	1. $f(x) = 2 x - 7$	1. $y = 2(x+6)^2$

Right Triangle Trigonometry

Assume the triangle is a right triangle. Here is an example:



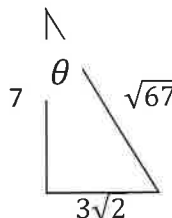
$$\sin \theta = \frac{2}{\sqrt{29}}$$

$$\cos \theta = \frac{5}{\sqrt{29}}$$

$$\tan \theta = \frac{2}{5}$$

* Write all three trigonometric equations for each triangle using SOH-CAH-TOA. Assume a right triangle.

1.



$$\sin \theta = \frac{3\sqrt{2}}{\sqrt{67}}$$

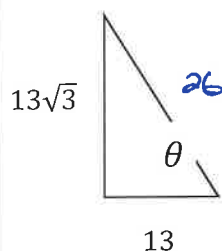
$$\cos \theta = \frac{7}{\sqrt{67}}$$

$$\tan \theta = \frac{3\sqrt{2}}{7}$$

Also use the Pythagorean Theorem to verify the side lengths of this right triangle.

* Write all three trigonometric equations for each triangle using SOH-CAH-TOA. Assume all triangles are right triangles.

2.



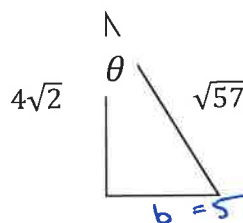
$$\sin \theta = \frac{13\sqrt{3}}{26}$$

$$\cos \theta = \frac{13}{26}$$

$$\tan \theta = \frac{13\sqrt{3}}{13}$$

* Write all three trigonometric equations for each triangle using SOH-CAH-TOA. Assume all triangles are right triangles.

3.



$$\sin \theta = \frac{4\sqrt{2}}{\sqrt{57}}$$

$$\cos \theta = \frac{b}{\sqrt{57}}$$

$$\tan \theta = \frac{4\sqrt{2}}{b}$$

$$(4\sqrt{2})^2 + b^2 = (\sqrt{57})^2$$

$$32 + b^2 = 57$$

$$b^2 = 25 \quad b = 5$$

* Solve each equation. Check/verify your answers.

a. $\frac{2}{3}x - 7 = 6$

$$x = \frac{39}{2} \text{ or } 19.5$$

b. $-\frac{x}{3} - 1 = 21$

$$x = -66$$

c. $\frac{3}{4}(2x - 9) = \frac{1}{4}x + \frac{3}{4}$

$$x = 6$$

d. $\frac{1}{2}(x - 7) = \frac{3}{5}x + \frac{5}{2}$

$$x = -60$$