Name_____

Worksheet 6 - Lesson 25

Date_____ Period_____

1) Willie left the hospital 0.8 hours before Sarawong. They traveled in opposite directions. Sarawong traveled at 54.5 mph for 4.8 hours. After this time they were 502.4 mi. apart. Find Willie's speed.

2) An Air Force plane left Tokyo and flew west at an average speed of 307.5 mph. Some time later a cargo plane left flying in the same direction but at an average speed of 344.4 mph. After flying for ten hours the cargo plane caught up with the Air Force plane. How long did the Air Force plane fly before the cargo plane caught up?

Solve each question. Round your answer to the nearest hundredth.

3) It takes Trevon 17.9 hours to clean an attic. Aliyah can clean the same attic in 9.6 hours. Find how long it would take them if they worked together.

4) Working together, Aliyah and Arjun can tar a roof in 6 hours. Had he done it alone it would have taken Arjun 9.5 hours. Find how long it would take Aliyah to do it alone.
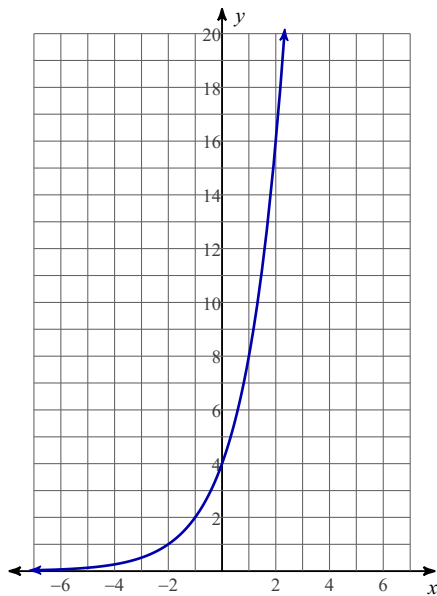
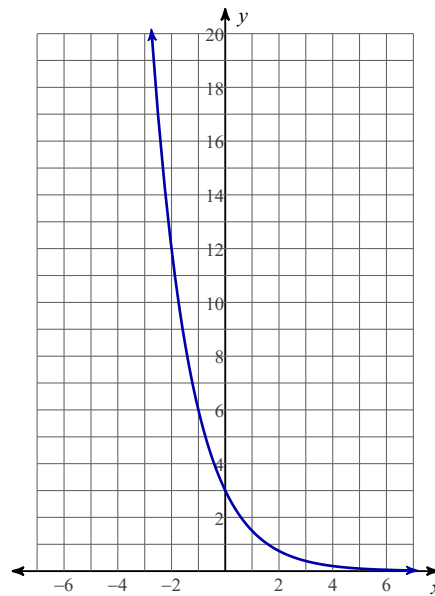**Solve each equation.**

5) $25^{-3b} = \dfrac{1}{625}$

6) $2^{3n+1} \cdot 2^n = 16$

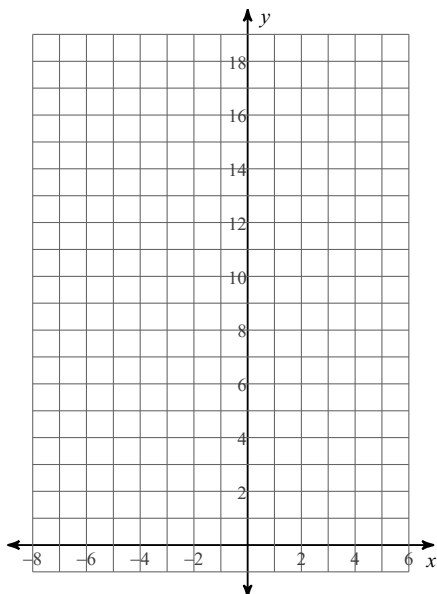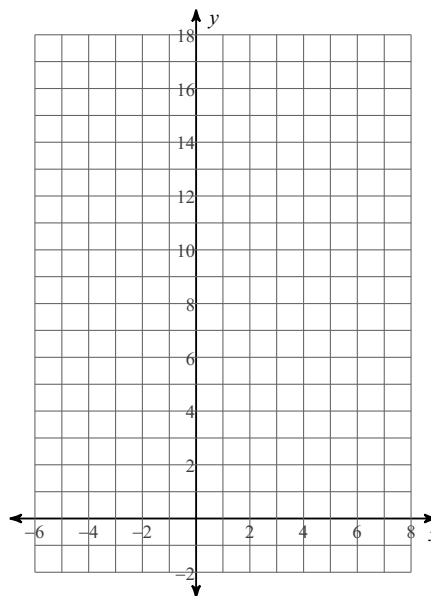**Write an equation for each graph.**

7)

8)

Sketch the graph of each function.

9) $f(x) = \left(\dfrac{1}{2}\right)^{x+1} - 1$

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

Perform the indicated operation.

11) $h(n) = n + 3$
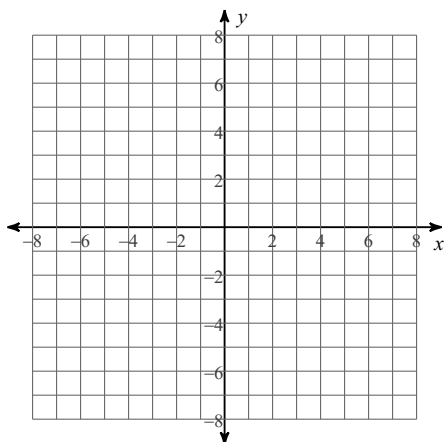$g(n) = n^2 - 3$
Find $(h \circ g)(n^2)$

12) $f(t) = t^2 + 1$
$g(t) = t + 2$
Find $f\left(\dfrac{t}{3}\right) \div g\left(\dfrac{t}{3}\right)$

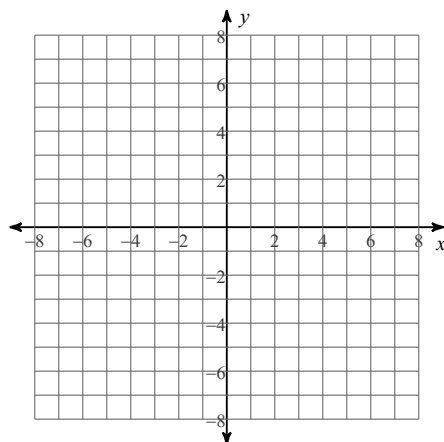13) $g(t) = 2t + 3$
$f(t) = 3t + 5$
Find $g(3t) + f(3t)$

14) $g(x) = -x + 4$
$f(x) = x - 5$
Find $(4g - f)(-4x)$

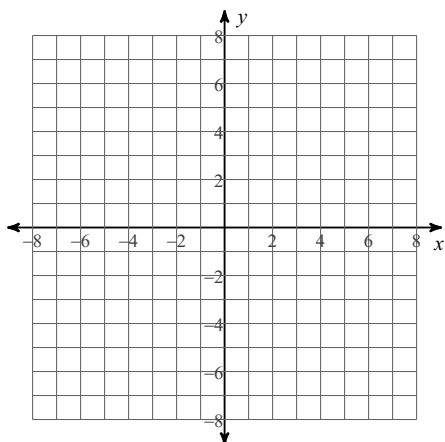**Identify the domain and range of each. Then sketch the graph.**
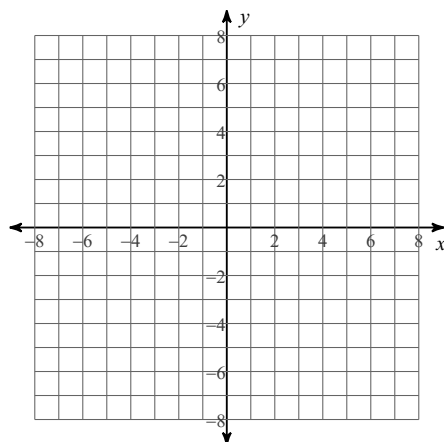
15) $y = -4 + \sqrt{x - 2}$

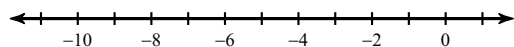16) $y = -\sqrt{x + 1} - 1$

17) $f(x) = -\dfrac{2}{x + 1}$

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

Solve each inequality and graph its solution.

19) $-2\left|n + 3\right| > -4$

20) $3\left|p + 3\right| \geq 3$