1. If $f(x) = x^2 + 3$ and $g(x) = -2x$ find $(f \circ g)(2)$

   $g(2) = -2(2) = -4$

   $f(-4) = (-4)^2 + 3 = 19$

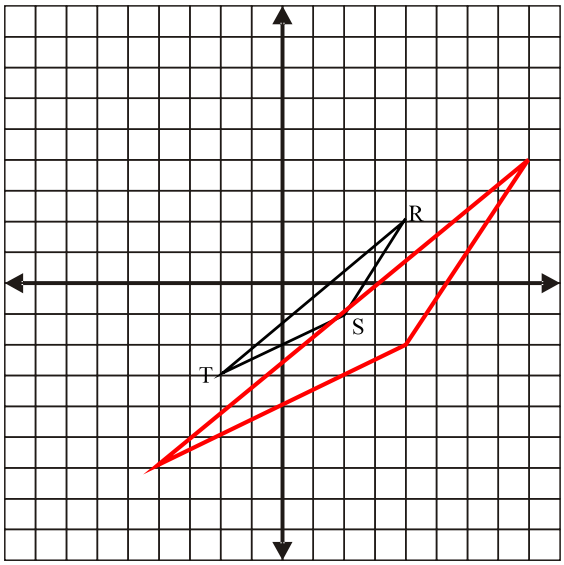
2. The ratio of the angles of a quadrilateral is 2x : 3x : 4x : 6x. Find the measure of the smallest angle. (The sum of the measures of the angles of a quadrilateral is 360°.)

   $2x + 3x + 4x + 6x = 360$

   $15x = 360$
   $x = 24$

   $2x = 2(24) = 48°$

3. Construct triangle R′S′T′ the result of the transformation D_2 of triangle RST.



4. Find the sum of

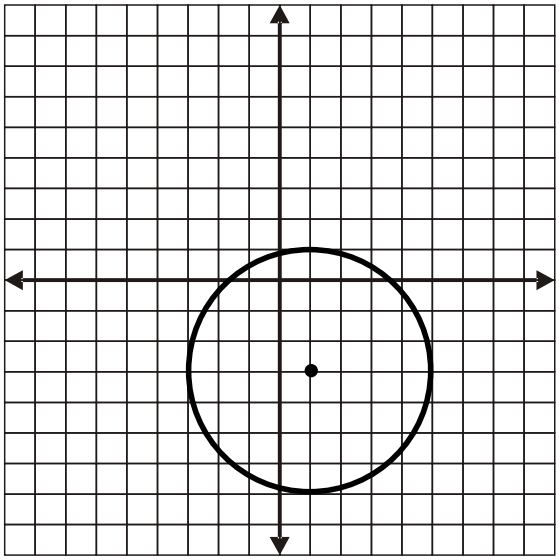
$$\sqrt{12} + \sqrt{75} + \sqrt{48}$$

$$\sqrt{4} \bullet \sqrt{3} + \sqrt{25} \bullet \sqrt{3} + \sqrt{16} \bullet \sqrt{3}$$

$$2\sqrt{3} + 5\sqrt{3} + 4\sqrt{3}$$

$$11\sqrt{3}$$

5. Graph the circle described by the formula $(x - 1)^2 + (y + 3)^2 = 16$.



6. If $\cos x = \frac{2}{5}$ find to value of x to the nearest tenth of a degree.

   $x = 66°$

7. Simplify: $4\sqrt{25x^8y^6}$.

   $4 \bullet 5x^4y^6 = 20x^4y^6$

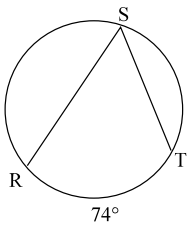
8. A car travels 20 miles north and 30 miles east. How far to the nearest mile is the car from its starting point?

$20^2 + 30^2 = x^2$

$1300 = x^2$

36 miles

9. Find m△RST in the circle below.

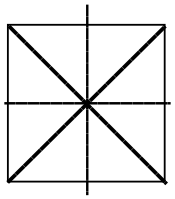


m△RST = 34°

10. Fill in the table below

radius	diameter	circumference	area
5	10	10π	25π
6	12	12π	36π
8	16	16π	64π
7	14	14π	49π

11. Draw the lines of symmetry in the square below.



12. Find the roots of the equation $x^2 - 6x - 3 = 0$ in simplest radical form.

$$x = \frac{6 \pm \sqrt{36 - 4(1)(-3)}}{2}$$

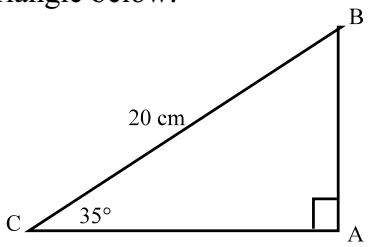
$$x = \frac{6 \pm \sqrt{48}}{2}$$

$$x = \frac{6 \pm \sqrt{16} \bullet \sqrt{3}}{2}$$

$$x = \frac{6 \pm 4\sqrt{3}}{2}$$

$$x = 3 \pm 2\sqrt{3}$$

13. Find AB to the nearest cm in the right triangle below.



$$\sin 35° = \frac{x}{20}$$

$$20 \sin 35° = x$$

$x = 11$

14. If the operation ♦ is defined as $a \blacklozenge b = ab - a^2$, evaluate $3 \blacklozenge 5$.

$3(5) - 3^2 = 6$