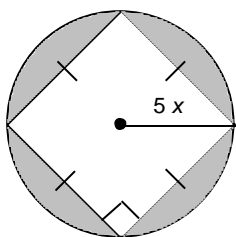# Common Factoring Lesson4

Short Answer

1. Factor the binomial $28a + 63a^2$.

2. Factor the trinomial $8 - 16n + 24n^2$.

3. Factor the trinomial $-21c^3d - 35c^2d^2 - 28cd^3$.

4. Simplify the expression $y^2 + 10y - 8 - 11y^2 - 30y - 32$, then factor.

5. Factor the trinomial $24a^2b - 30ab + 54ab^2$.

6. Factor the binomial $12x^3 - 16x$.

7. Factor the trinomial $8m^2n - 14n^2 - 2mn$.

Problem

8. A square is drawn inside a circle with radius $5x$.
   a) Write an expression for the area of the shaded region.
   b) Factor the expression.

Common Factoring Quiz 2020
Answer Section

SHORT ANSWER

1. ANS:
$7a(4 + 9a)$

2. ANS:
$8(1 - 2n + 3n^2)$

3. ANS:
$-7cd(3c^2 + 5cd + 4d^2)$

4. ANS:
$-10(y^2 + 2y + 4)$

5. ANS:
$6ab(4a - 5 + 9b)$

6. ANS:
$4x(3x^2 - 4)$

7. ANS:
$2n(4m^2 - 7n - m)$

PROBLEM

8. ANS:
a) The area of the shaded region is the area of the circle minus the area of the square.

Use the formula for the area of a circle.
$$A = \pi r^2$$
$$A = \pi(5x)^2$$
$$A = 25\pi x^2$$

To determine the area of the square, first determine the side length, s, of the square.

Use the Pythagorean Theorem in
right $\triangle ABC$.

$$s^2 = AB^2 + BC^2$$

$$s^2 = (5x)^2 + (5x)^2$$

$$s^2 = 25x^2 + 25x^2$$

$$s^2 = 50x^2$$

$$s = \sqrt{50x^2}$$

Use the formula for the area, A, of a square.

$$A = s^2$$

$$A = \left(\sqrt{50x^2}\right)^2$$

$$A = 50x^2$$

The area, A, of the shaded region is:.

$$A = 25\pi x^2 - 50x^2$$

b) $25\pi x^2 - 50x^2 = 25x^2(\pi - 2)$