

1) Simplify each by using the Laws of Exponents:

Per: _____

a) $x^5 \cdot x^3$

b) $\frac{x^{12}}{x^3}$

c) $(x^3)^2$

d) $\frac{x^{10}}{x^5}$

e) $(x^5)^4$

f) $x^3 \cdot x^4 \cdot x^5$

g) $\frac{4x^5}{2x^3}$

h) $3x^7 \cdot 2x^3$

i) $(4x^2)^3$

j) $\frac{4^5}{4^3}$

2) Simplify each by using what you know about zero exponents:

a) x^0

b) $(3x)^0$

c) $5x^0$

d) $(x + y)^0$

e) $x^0 + y^0$

3) Rewrite each expression without any negative exponents:

a) x^{-5}

b) $\frac{1}{x^{-4}}$

c) $\frac{1}{6^{-2}}$

d) 2^{-4}

e) $\frac{x^{-5}}{x^{-2}}$

4) Simplify each of the following:

a) $\sqrt[3]{8}$

b) $\sqrt[3]{125}$

c) $\sqrt[5]{32}$

d) $\sqrt[3]{27}$

e) $\sqrt[4]{256}$

5) Factor and then solve for x using Zero Product Property:

a) $x^2 + 11x + 24 = 0$

b) $2x^2 + x - 3 = 0$

c) $3x^2 - 16x + 5 = 0$

6) Identify each set of values below and sketch a graph of the following parabola: $y = x^2 - 2x - 3$

x- intercepts: (, 0) and (, 0)

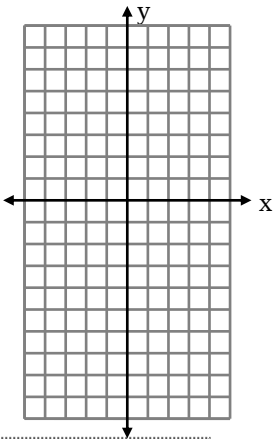
Hint: factor and use Zero Product Property to find the x values

vertex: (,)

Hint: average the x-intercepts (or use graph) to find the middle value for x, then substitute into equation to find the y value

y- intercepts: (0 ,)

Hint: let x = 0 and substitute into given equation to find y



Check Your Answers # 1-4

x^4
 x^5
 x^6
 x^8
 x^9
 x^{12}
 x^{20}
 $2x^2$
 $6x^{10}$
 $64x^6$

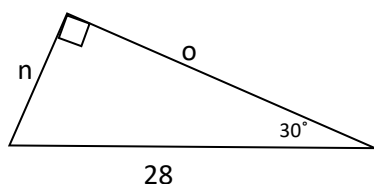
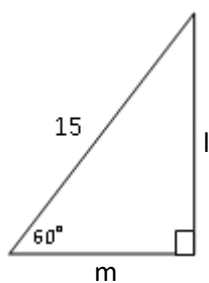
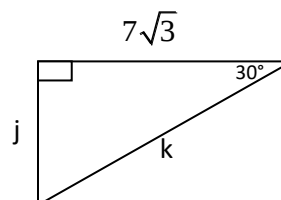
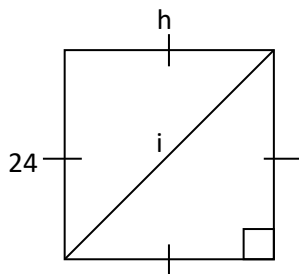
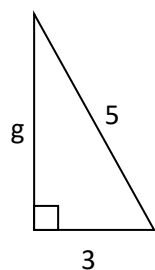
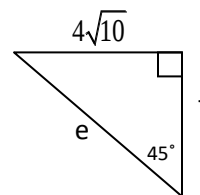
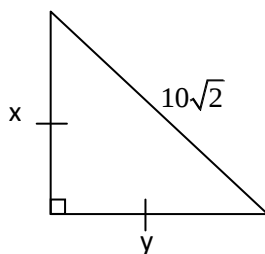
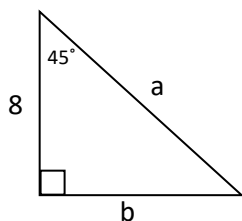
1
1
1
2
2
2
3
4
5
5
16
36
 $\frac{1}{x^3}$
 $\frac{1}{x^5}$
 $\frac{1}{16}$

Check Your Answers # 5-6

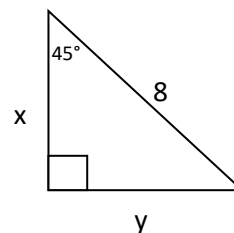
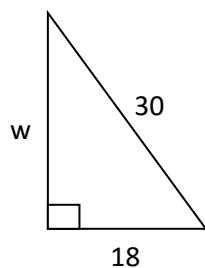
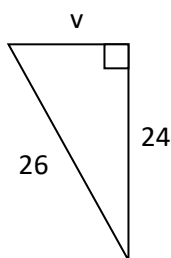
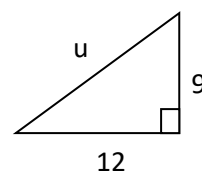
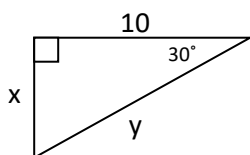
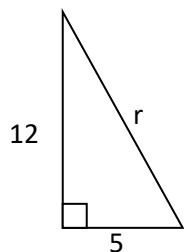
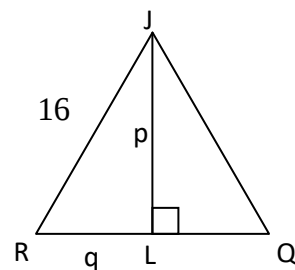
-8
-4
-3
-3
 $-\frac{3}{2}$
-1

$\frac{1}{3}$
1
1
3
5

7) Find the missing sides of the following special right triangles. Use Pythagorean triples, 30-60-90, or 45-45-90.



Equilateral Triangle



Check Answers #7

$$4\sqrt{2} \quad 4\sqrt{2} \quad 8\sqrt{2} \quad 24\sqrt{2} \quad 7.5\sqrt{3} \quad 8\sqrt{3} \quad 14\sqrt{3} \quad 8\sqrt{5} \quad 4\sqrt{10} \quad \frac{10\sqrt{3}}{3} \quad \frac{20\sqrt{3}}{3}$$

4 7 7.5 8 8 10 13 13 13 14 14 15 24 24