Pre-Calculus
Pre-Requisites Review

Name: Key

Solve the quadratic equation by factoring or the quadratic formula. Round your answers to the nearest hundredth, if necessary.

1. $x^2 - 7x - 18 = 0$

$(x-9)(x+2)=0$

$-2, 9$

2. $10x^2 + 89x - 9 = 0$

$x^2+89-90=0$

$(x+\frac{90}{10})(x-\frac{1}{10})=0$

$\frac{1}{10}, 9$

3. $9x^2 = 5x + 10$

$9x^2-5x-10=0$

$\frac{(-5) \pm \sqrt{(-5)^2-4(9)(-10)}}{2(9)} = \frac{5 \pm \sqrt{25+360}}{18} = \frac{5 \pm \sqrt{385}}{18}$

4. $8x^2 - 4x = 18$

$\frac{8x^2-4x+18=0}{2\ \ 2\ \ 2\ \ 2}$

$4x^2-2x+9=0$

$\frac{-(-2) \pm \sqrt{16-4(4)(9)}}{8}$

negative discrim, so no solution

Solve the equation using logarithms. Round your answers to the nearest hundredth, if necessary.

5. $3^r = 17$

$r = \log_3 17$

2.58

6. $5 \bullet 18^x = 26$

$\frac{5}{5}\ \ \frac{}{5}$

$18^x = 5.2$

$x = \log_{18}(5.2)$

0.57

Evaluate the expression.

7. $\sqrt[3]{27}$

$\sqrt[3]{3 \cdot 3 \cdot 3}$

3

8. $-\sqrt{256}$

-4

Simplify the expression.

9. $(3x^4)^3$

$3^3 x^{12}$

or

$27x^{12}$

10. $\left(\frac{3x^{-5}}{5y^{-2}}\right)^{-3}$

$\left(\frac{5y^{-2}}{3x^{-5}}\right)^3$

$\frac{5^3 x^{15}}{3^3 y^6}$

11. $(5x^4)^3 \bullet (2x^6)^5$

$5^3 x^{12} 2^5 x^{30}$

$5^3 \cdot 2^5 x^{42}$

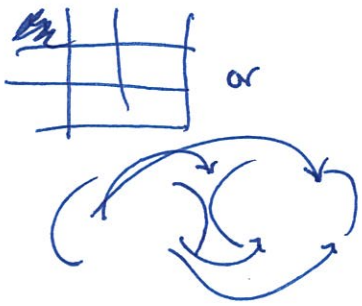
Expand the binomials.

12. $(x+3)^2$

x^2+6x+9

13. $(x-2)^3$

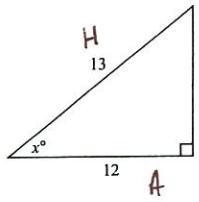
x^2-4x+4



or

Use SOH CAH TOA to find the missing side length or angle. Round angle measures to the nearest degree and side lengths to the nearest tenth.

14.



In degree mode

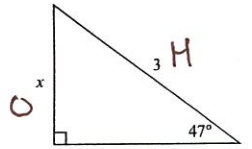
O CAH

$\cos x^\circ = \frac{12}{13}$

$\cos^{-1}\left(\frac{12}{13}\right)$

22.6° or 23°

15.



O SOH

3. $\sin 47^\circ = \frac{x}{3}$

2.2

Simplify the expression.

16. $\frac{4n-4}{6n-20}$

$\frac{4(n-1)}{2(3n-10)}$

$\frac{2(n-1)}{3n-10}$

17. $\frac{b^2+3b-28}{b^2-49}$

$\frac{(b+7)(b-4)}{(b-7)(b+7)}$

$\frac{b-4}{b-7}$

18. $\frac{x^3-x^2-42x}{2x^2-20x+42}$

$\frac{x(x-7)(x+6)}{2(x-7)(x-3)}$

$\frac{x(x+6)}{2(x-3)}$

Prerequisites Practice for Homework:

Solve the quadratic equation by factoring or the quadratic formula. Round your answers to the nearest hundredth, if necessary.

1. $9x^2 - 11 = 6x$

2. $n^2 - 10n + 22 = -2$

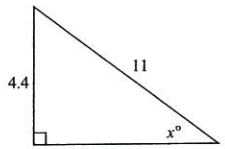
3. $3r^2 - 16r - 7 = 5$

4. Solve using logarithms: $16^r = 67$

5. Simplify the expression: $(2v)^2 \bullet 2v^2$

6. Expand: $(2x + y)^2$

7. Find the value of x. Round to the nearest tenth.



8. Simplify: $\frac{x^2+2x-80}{2x^3-24x^2+64x}$