

# Are you Ready for Pre-Calculus?

Convert the measuring units as indicated

1.  $60\text{yd} = \underline{\hspace{2cm}}$  ft, if  $1\text{yd} = 3\text{ft}$

2.  $5\text{ gal} = \underline{\hspace{2cm}}$  qt, if  $1\text{ gal} = 4\text{qt}$

3.  $7000\text{m} = \underline{\hspace{2cm}}$  km, if  $1\text{km} = 1000\text{m}$

4.  $20^\circ = \underline{\hspace{2cm}}$  Radians, if  $180^\circ = \pi$  Radians

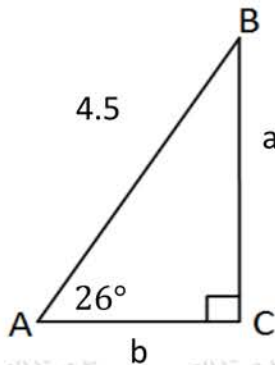
Use the Pythagorean Theorem to find the missing side length. Leave answers in simplest form.

5.  $a = 11, b = 8, c = ?$

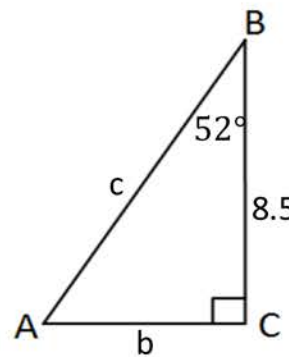
6.  $a = \frac{2}{3}b, c = 12$

Solve the right triangle. Round decimals to the nearest hundredth.

7.



8.



Perform the indicated operation and reduce to simplest form.

9.  $\frac{3}{5} + \frac{4}{9}$

10.  $\frac{5}{6} - \frac{2}{13}$

11.  $\frac{\left(\frac{3}{4} + \frac{7}{9}\right)}{2}$

12.  $[(3 \cdot 2 + 5)2]2 - 4$

$$13. x^3(x-1)^2(2+x)(2-x)$$

$$14. \frac{x - \frac{5x}{x+5}}{x + \frac{5x}{x-5}}$$

**Solve for the indicated variable**

$$15. (2x+y)(2x-y) = 4x(x-1); x$$

$$16. R = \frac{a}{1-a}; a$$

**Factor completely**

$$17. 7y^2 - 23xy + 6x^2$$

$$18. 9x^3 - 63x^2 + 108x$$

**Solve each equation by the most efficient method. Write all answers in simplest form**

$$19. 7n + 2[3(1-n) - 2(1+n)] = 14$$

$$20. 3x^2 - 41x = -60$$

$$21. 4x^4 + 21x^2 - 18 = 0$$

$$22. \frac{1}{y} - \frac{2}{1-y} = \frac{8}{y^2-y}$$

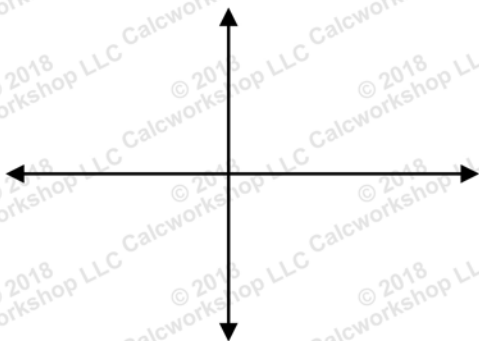
$$23. 9^{4+x} \cdot 81^x = \frac{1}{3}$$

$$24. \log_2(2+5x) = 3$$

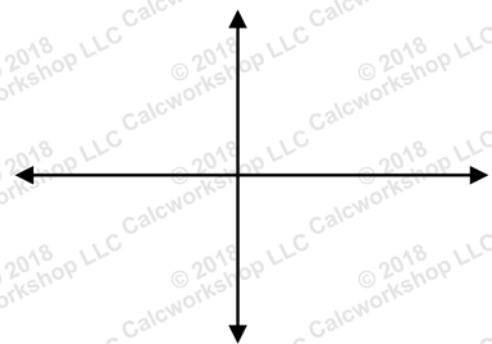
$$25. \sqrt{9-7x} + 6 = 10$$

Graph each function

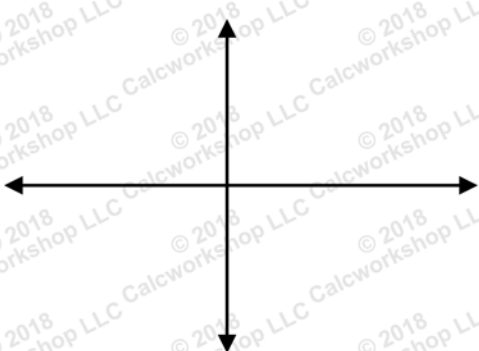
$$26. f(x) = \begin{cases} 1 & x \leq -2 \\ -x & -2 < x \leq 3 \\ 4 & x > 3 \end{cases}$$



$$27. \frac{x}{4} + y = 0$$



$$28. y = x^2 - 3x$$



$$29. \begin{cases} 3x + 4y = 10 \\ x - y = 1 \end{cases}$$



30. Given  $f(x) = 2x^2 + 3x - 5$  and  $g(x) = 12 - 2x$  find the following

a.  $f(1)$

b.  $g(-3)$

c.  $(fg)(2)$

d.  $\left(\frac{f}{g}\right)(0)$

e.  $f(g(x))$

f.  $g(f(x))$