

1.1
39 composite
^
3 · 19

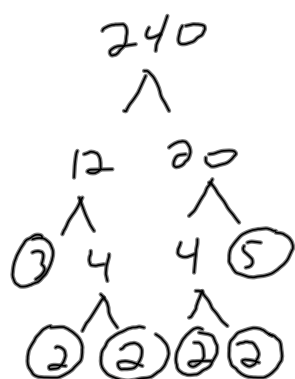
48 composite

2 · 24, for example, or 3 · 16.

57 composite
3 · 19

59 prime

0 neither - primes & composites must be bigger than 1.



$$\begin{array}{r} 3 \\ 7 \overline{) 21} \\ \underline{21} \\ 0 \\ 2 \overline{) 42} \\ \underline{42} \\ 0 \\ 2 \overline{) 84} \\ \underline{84} \\ 0 \\ 2 \overline{) 168} \\ \underline{168} \\ 0 \end{array}$$

$$168 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 7 \\ \text{or } 2^3 \cdot 3 \cdot 7$$

$$\frac{\cancel{16}^4}{\cancel{20}_5} = \frac{4}{5}$$

$$\text{ex } \frac{5}{9} \cdot \frac{10}{7} = \frac{50}{63}$$

$$\begin{aligned} \text{ex } \frac{7}{6} \div \frac{9}{10} &= \frac{7}{\cancel{6}_3} \cdot \frac{\cancel{10}^5}{9} \\ &= \frac{35}{27} \end{aligned}$$

$$\underline{\text{ex}} \quad 2\frac{1}{2} \div 1\frac{5}{7} =$$

$$\frac{5}{2} \div \frac{12}{7} =$$

$$\frac{5}{2} \cdot \frac{7}{12} =$$

$$\frac{35}{24}$$

$$\underline{\text{ex}} \quad \frac{3}{16} + \frac{5}{16} = \frac{8}{16} = \frac{1}{2}$$

$$\begin{aligned}\underline{\text{ex}} \quad & 8\frac{4}{5} - 7\frac{4}{9} \\ & = 8\frac{36}{45} - 7\frac{20}{45} \\ & = 1\frac{16}{45}\end{aligned}$$

$$\begin{aligned}\underline{\text{ex}} \quad & \frac{1}{8} \cdot 7\frac{1}{2} = \frac{1}{8} \cdot \frac{15}{2} \\ & = \frac{15}{16}\end{aligned}$$

1.2

ex $4^3 = 4 \cdot 4 \cdot 4 = 64$

"4 cubed"

ex $\left(\frac{2}{3}\right)^5 = \frac{2}{3} \cdot \frac{2}{3} \cdot \frac{2}{3} \cdot \frac{2}{3} \cdot \frac{2}{3}$

$$= \frac{32}{243}$$

" $\frac{2}{3}$ to the 5th power"

$$\begin{aligned}\underline{\text{ex}} \quad & 6[2 + 8(3^3)] \\ & = 6[2 + 8(27)] \\ & = 6[2 + 216] \\ & = 6[218] \\ & = 1308\end{aligned}$$

$$\begin{aligned}\underline{\text{ex}} \quad & \frac{6(5+1) - 9(1+1)}{5(8-6) - 2^3} \\ & = \frac{6(6) - 9(2)}{5(2) - 8} \\ & = \frac{36 - 18}{10 - 8} \\ & = \frac{18}{2} = 9\end{aligned}$$

ex T or F?

$$6[2 + 3(2 + 5)] \leq 135$$

$$6[2 + 3(7)] \leq 135$$

$$6[2 + 21] \leq 135$$

$$6[23] \leq 135$$

$$138 \leq 135$$

False

ex $12 = 20 - 8$

ex Nine is less than ten. True

ex $4 < 8$

1.3

ex $5x^2$

$5(4)^2$

$= 5(16)$

$= 80$

$5(6)^2$

$= 5(36)$

$= 180$

ex $\frac{4x-1}{3x}$

$\frac{4(4)-1}{3 \cdot 4}$

$= \frac{16-1}{12}$

$= \frac{15}{12} = \frac{5}{4}$

$\frac{4(6)-1}{3 \cdot 6}$

$= \frac{24-1}{18}$

$= \frac{23}{18}$

ex

$$4x + 2y + 7$$

$$4 \cdot 2 + 2 \cdot 1 + 7$$

$$= 8 + 2 + 7$$

$$= 17$$

$$4 \cdot 1 + 2 \cdot 5 + 7$$

$$= 4 + 10 + 7$$

$$= 21$$

ex $9x$

ex

$$\frac{3x + 5 = 8}{3x + 5 = 8}$$

$$3 \cdot 1 + 5 = 8$$

$$3 + 5 = 8$$

$$8 = 8$$

yes,

1 is a solution

ex $14 - x$

ex $\underline{6a + 2(a + 3) = 14}$

$$6 \cdot 2 + 2(2 + 3) = 14$$

$$12 + 2(5) = 14$$

$$12 + 10 = 14$$

$$22 = 14$$

no, 2 is not a solution.

ex $\frac{6}{5}x + 2 = 14$

$$\frac{6}{5} \cdot 2 + 2 \stackrel{?}{=} 14$$

$$\frac{12}{5} + 2 \stackrel{?}{=} 14$$

no

$$\frac{6}{5} \cdot 4 + 2 \stackrel{?}{=} 14 \quad \frac{6}{5} \cdot 6 + 2 \stackrel{?}{=} 14$$

$$\frac{24}{5} + 2 \stackrel{?}{=} 14 \quad \frac{36}{5} + 2 \stackrel{?}{=} 14$$

no

no

$$\frac{6}{5} \cdot 8 + 2 \stackrel{?}{=} 14$$

$$\frac{48}{5} + 2 \stackrel{?}{=} 14$$

no

$$\frac{6}{5} \cdot 10 + 2 \stackrel{?}{=} 14$$

$$\frac{60}{5} + 2 \stackrel{?}{=} 14$$

$$12 + 2 \stackrel{?}{=} 14$$

yes

1.4ex -8

opposite: 8

absolute value: 8

11

opposite: -11

absolute value: 11

ex

-9, (-14)

(-8) | -9 |

ex

$$-8 > -(-2)$$

$$-8 > 2$$

False

$$|-12| \leq |-20|$$

$$12 \leq 20$$

True

$$-|-12| \leq -|-15|$$

$$-12 \leq -15$$

False

ex 1.8 -3.1
 ↑
 greater

1.5
ex $12 + (-9)$
 or $12 - 9$
 (3)

ex $-11 + (-4)$
 or $-11 - 4$
 (-15)

ex $-12 + 10$
 or $-12 - (-10)$
 (-2)

ex $8 - 13$
 or $8 + (-13)$
 (-5)

$$\begin{aligned}\underline{\text{ex}} \quad & -4 - (5 - 12) \\ & = -4 - (-7) \\ & = -4 + 7 \\ & = \textcircled{3}\end{aligned}$$

$$\begin{aligned}\underline{\text{ex}} \quad & -3 + 5 + (-12) \\ & = -3 + 5 - 12 \\ & = \textcircled{-10}\end{aligned}$$

$$\begin{aligned}\underline{\text{ex}} \quad & |-2 - 7| - |9 - (-3)| \\ & = |-9| - |9 + 3| \\ & = 9 - 12 \\ & = \textcircled{-3}\end{aligned}$$

$$\begin{aligned}\underline{\text{ex}} \quad & 7 - (-14) \\ & = 7 + 14 \\ & = \textcircled{21}\end{aligned}$$

1.6

ex $(-4)(-6) = 24$

ex $(-8)(5) = -40$

ex $(-12)(0) = 0$

ex $\left(\frac{-1}{4}\right)\left(\frac{-3}{25}\right) = \frac{3}{10}$

ex 36

1, 36, 2, 18, 3, 12, 4, 9, 6

$$\underline{\text{ex}} \quad 17 \rightarrow 1, 17$$

$$\begin{aligned} \underline{\text{ex}} \quad & (5-12)(19-4) \\ & = (-7)(15) \\ & = \textcircled{-105} \end{aligned}$$

$$\begin{aligned} \underline{\text{ex}} \quad & 4(-8) + |4-15| \\ & = -32 + |-11| \\ & = -32 + 11 \\ & = \textcircled{-21} \end{aligned}$$

$$\begin{aligned} \underline{\text{ex}} \quad & \frac{-5(2) + [3(-2) - 4]}{-3 - (-1)} = \frac{-10 + [-6 - 4]}{-3 + 1} \\ & = \frac{-10 + [-10]}{-2} = \frac{-20}{-2} = \textcircled{10} \end{aligned}$$

$$\begin{aligned}\underline{\text{ex}} \quad & 5x - 4a^2 \\ & = 5(6) - 4(3)^2 \\ & = 30 - 4(9) \\ & = 30 - 36 \\ & = \textcircled{-6}\end{aligned}$$

$$\begin{aligned}\underline{\text{ex}} \quad & \frac{-18 + (-6)}{2(-4)} \\ & = \frac{-24}{-8} \\ & = \textcircled{3}\end{aligned}$$

ex $4x = -36$

$$4(-9) = -36$$

$$-36 = -36$$

$$x = -9$$

ex
$$\frac{18 + 12 + 0 + (-4) + (-10)}{5}$$

$$= \left(\frac{16}{5} \right)$$