

Unit 2A Study Guide

Solve each equation.

1) $-1 = 1 - k$

2) $n + 2 = 16$

3) $-5 = -8 + x$

4) $n + 18 = 12$

5) $11 = x - (-17)$

6) $-17 = \frac{x}{19}$

7) $12n = 108$

8) $\frac{1}{3} = \frac{n}{15}$

9) $104 = 13p$

10) $20 = \frac{k}{3}$

11) $2 = \frac{9 + n}{14}$

12) $63 = 7(x - 10)$

$$13) \frac{v}{9} + 6 = 6$$

$$14) \frac{n-8}{21} = -1$$

$$15) 13 = \frac{r}{5} + 9$$

$$16) 10 = -(-6 + n)$$

$$17) -7 + \frac{n}{4} = -12$$

$$18) \frac{-10 + p}{2} = -7$$

$$19) 3x + 3 + 4x = -4$$

$$20) -2n - 7n = -9$$

$$21) -7r - 2r = -18$$

$$22) -22 = 8x + 8 - 2x$$

$$23) x - 8x = -21$$

$$24) -195 = 5(1 - 5n)$$

$$25) 4(3m - 5) = -104$$

$$26) -5x - 7(1 + 6x) = 87$$

$$27) -260 = 5(8a - 4)$$

$$28) -95 = -7 + 8(b - 4)$$

$$29) 3(8x - 1) - 3(5x - 5) = 66$$

$$30) -8(1 + 4a) + 8(7 + 7a) = 48$$

$$31) 60 = -6(3b + 2) + 6(6b - 6)$$

$$32) -35 = -7(-3p - 5) + 2(-2p - 1)$$

$$33) -23 = -5(-4v - 1) + 7(7v - 4)$$

$$34) -9 + 4r = 6 + r$$

$$35) 8n = n + 7$$

$$36) 6a + 5a = 6a + 15$$

$$37) x - 2 - 8 + 3 = -2x + 2x$$

$$38) 2 + 5x = 6x + 5 - 4$$

$$39) -20 - 2x = -4(-7 + 7x) + 2x$$

$$40) 8(-3 + 5a) = -24 + 4a$$

$$41) 40 - 7m = -(m + 8)$$

$$42) -2x + 36 = 6(2x - 8)$$

$$43) 7x - 21 = 7(2x + 6) + 2x$$

Solve each proportion.

$$44) \frac{9}{3} = \frac{7}{x}$$

$$45) \frac{10}{p} = \frac{5}{8}$$

$$46) \frac{6}{4} = \frac{n}{9}$$

$$47) \frac{5}{4} = \frac{7}{x-7}$$

$$48) \frac{b-4}{9} = \frac{3}{4}$$

$$49) \frac{b-7}{4} = \frac{7}{3}$$

$$50) \frac{a}{a+10} = \frac{8}{7}$$

$$51) \frac{x-7}{9} = \frac{x}{5}$$

$$52) \frac{x}{x+5} = \frac{2}{9}$$

$$53) \frac{b-3}{b-2} = \frac{10}{9}$$

$$54) \frac{3}{8} = \frac{r-4}{r+4}$$

$$55) \frac{4}{m-8} = \frac{9}{m+1}$$

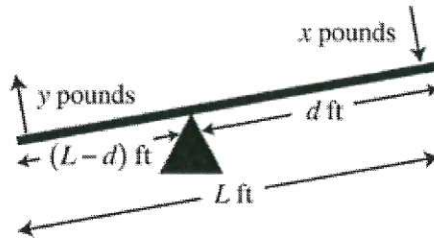
Unit 2A Study Guide

1. Valerie sold 42 tickets to the school play and Mark sold 24 tickets. What is the ratio of the number of tickets Valerie sold to the number of tickets Mark sold?
2. Two machines can complete 5 tasks every 4 days. Let t represent the number of tasks these machines can complete in a 31-day month. Which proportion can you use to find the value of t ?
 - a. $\frac{31}{10} = \frac{t}{4}$
 - b. $\frac{4}{31} = \frac{t}{5}$
 - c. $\frac{5}{4} = \frac{t}{31}$
 - d. $\frac{4}{5} = \frac{t}{31}$
3. A bus travels 300 miles on 12 gallons of gas. At this rate, how many gallons will it need to travel 650 miles?

GRIDDED RESPONSE Grid the correct answer on a separate gridding sheet.

4. Raul uses 6.97 pounds of ground beef to make a casserole that serves 17 people. How many pounds would he need to make the casserole for 13 people?
5. A worker on an assembly line takes 3 hours to produce 22 parts. At this rate, how many parts can the worker produce in 15 hours?
6. A classroom contains 18 girls and 24 boys. Write the ratio of girls to boys in the classroom as a fraction in lowest terms.
7. An airplane traveled 372 miles in the first 3 hours of a 500-mile trip. Write a proportion to find t , the total time, in hours, required for the trip traveling at this rate.
8. A car travels 80 miles on 4 gallons of gas. At this rate, how many gallons will it need to travel 460 miles?
9. Solve $z = \frac{9}{13}c$ for c .
10. Solve $y = \frac{5}{8}b + 10$ for b .

11. The formula for converting degrees Celsius (C) to degrees Fahrenheit (F) is $F = \frac{9}{5}C + 32$. A chemistry student knows that the temperature in degrees Kelvin (K) is 273.15 degrees greater than in degrees Celsius, so the formula to convert degrees Kelvin to degrees Fahrenheit is $F = \frac{9}{5}(K - 273.15) + 32$. What formula can you use to convert degrees Fahrenheit to degrees Kelvin?
12. When x pounds of force is applied to one end of a lever that is L feet long, the resulting force y on the other end is determined by the distance between the fulcrum (the lever's pivot) and the end of the lever on which the x pounds of force is exerted.



The formula relating the forces is $xd = y(L - d)$. What formula can you use to find the length of the lever?

- a. $L = \frac{xd}{y} + d$
- b. $L = \frac{xd + d}{y}$
- c. $L = \frac{xd - yd}{y}$
- d. $L = \frac{yd}{x} + d$
13. Solve $240 = 6z + c$ for c .
14. Solve $300 = xq + n$ for x .
15. Solve $10q + 15n = 49$ for q .
16. Solve $-9p - 5m = 60$ for p .
17. The cost of a taxi ride is given by $C = rd + a$, where r is the rate per one-fifth mile, d is the trip distance in terms of the number of one-fifth-mile units in the trip, and a is the flag-drop fee (an automatic charge created when the meter is started). Solve the equation for the mileage rate r .