

Problem Set (Advanced)

1. If $b = \frac{3a-6}{4}$, then what is a ?

- (A) $\frac{12b}{5}$ (B) $\frac{4b-6}{3}$ (C) $\frac{3b+6}{4}$ (D) $\frac{4b+6}{3}$ (E) $3b+6$

2. What number is x percent of y percent of z , in terms of x , y , and z ?

- (A) $\frac{xyz}{10,000}$ (B) $\frac{xy+xz}{10,000}$ (C) $\frac{xyz+100xz}{10,000}$ (D) $\frac{xyz}{100}$ (E) $\frac{xy+xz}{100}$

3. x is what percent greater than y , in terms of x and y ?

- (A) $100\left(\frac{x+y}{y}\right)$ (B) $100\left(\frac{y}{x+y}\right)$ (C) $100\left(\frac{x-y}{y}\right)$
(D) $100\left(\frac{y}{x-y}\right)$ (E) $\frac{100x-y}{y}$

4. x is what percent of y percent of z , in terms of x , y and z ?

- (A) $\frac{100xy}{z}$ (B) $\frac{100yz}{x}$ (C) $\frac{100y}{xz}$ (D) $\frac{10,000x}{yz}$ (E) $\frac{10,000yz}{x}$

5. If $a = 20bc$, then a is what percent of b ?

- (A) $20c$ (B) $2,000c$ (C) $\frac{c}{20}$ (D) $\frac{c}{2,000}$ (E) $c+20$

6. If a , b , and c are greater than 0 and a is twice as large as b percent of c , then in terms of b and c , what is a percent of c ?

- (A) $\frac{2bc}{100}$ (B) $\frac{2bc^2}{1,000}$ (C) $\frac{bc^2}{5,000}$ (D) $\frac{b^2c}{5,000}$ (E) $\frac{5,000b}{c^2}$

7. X percent of Y percent of Z is decreased by Y percent. What is the result?

- (A) $\frac{100XYZ - XY^2Z}{1,000,000}$ (B) $\frac{XZ - Y}{100}$ (C) $\frac{XZ - Y}{10,000}$
(D) $\frac{XYZ - 2Y}{100}$ (E) $\frac{XYZ - 2Y}{10,000}$

8. Two wooden boards have the same area. One of the boards is square and the other is rectangular. If the square board has a perimeter of p meters and the rectangular board has a width of w meters, what is the length of the rectangular board, in terms of p and w ?

(A) $\frac{p^2}{w}$ (B) $\frac{p^2}{4w}$ (C) $\frac{p^2}{16w}$ (D) $\frac{p^2w}{4}$ (E) $\frac{p^2w}{16}$

9. Bradley owns b video game cartridges. If Bradley's total is one-third the total owned by Andrew and four times the total owned by Charlie, how many video game cartridges do the three of them own altogether, in terms of b ?

(A) $\frac{16}{3}b$ (B) $\frac{17}{4}b$ (C) $\frac{13}{4}b$ (D) $\frac{19}{12}b$ (E) $\frac{7}{12}b$

10. Linda and Angela contract to paint a neighbor's house. Even though Linda spends 50% more time painting the house than Angela, each receives a payment of m dollars when the work is completed. If Angela decides to pay Linda n dollars so that they would have received the same compensation per hour worked, what is n in terms of m ?

(A) $\frac{1}{2}m$ (B) $\frac{1}{3}m$ (C) $\frac{1}{4}m$ (D) $\frac{1}{5}m$ (E) $\frac{1}{6}m$

11. A park ranger travels from his base to a camp site via truck at r miles per hour. Upon arriving, he collects a snowmobile and uses it to return to his base. If the camp site is d miles from the park ranger's base and the entire trip took t hours to complete, what was his speed on the snowmobile, in terms of t , d and r ?

(A) $tr - d$ (B) $td - r$ (C) $\frac{dr}{rt - d}$ (D) $\frac{drt}{dt - r}$ (E) $\frac{td - r}{d}$

6. C

1. D

7. A

2. A

8. C

3. C

9. B

4. D

10. D

5. B

11. C

