Practice Quantitative Comparison Questions

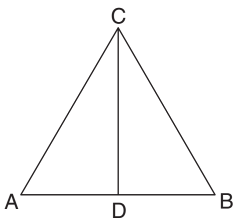
Easy to Moderate

	Column A	Column B
1.	4.78498	$4\frac{3}{4}$
2.	$\frac{9}{11}$	$\frac{11}{13}$

$x > 0$

3.	$x + \frac{x}{2}$	$x - \frac{x}{2}$

Questions 4–6 refer to the diagram.



ΔABC is equilateral
CD is a median

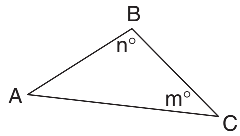
4.	$\angle ABC + \angle BAC$	$\angle CDB$
5.	AD	DB
6.	AB + BD	BC

$x + y = 0$

7.	x	y

$p = \pm 3$

8.	$(p + 2)^2$	26
9.	76.088	76.10
10.	$\frac{1}{19} - 1$	$\frac{1}{18} - 1$



$\overline{AB} = \overline{BC}$

11.	n	m
12.	5^3	2^7

$6x + 18y = 12$

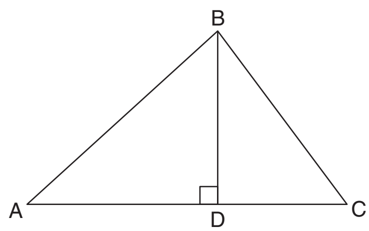
13.	$x + 3y$	2

$x + y = 4$

$xy = 0$

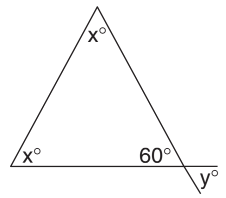
14.	x	y

Questions 15–18 refer to the diagram



$AD = BD = 6$, $\angle ADB = 90°$

15.	AB	BC
16.	$\angle BAD$	$\angle ABD$
17.	$\angle DBC + \angle BCD$	90°
18.	AB + BC	AC



19. x | y

$a = b$

$a < c$

20. $2a$ | $b + c$

$$\frac{a}{6} = \frac{b}{4}$$

21. $2a$ | $3b$

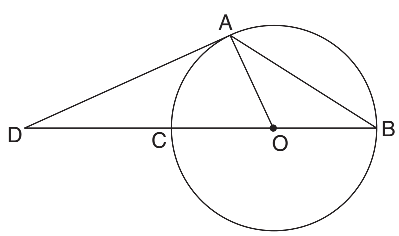
Average

$a > 0$

22. $5ab$ | $10ab$

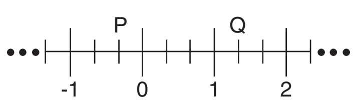
23. Area of circle with diameter 8 | Area of square with side 7

Questions 24–25 refer to the diagram.

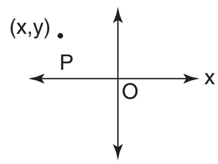


24. $\overset{\frown}{AC}$ | $2(\angle B)$

25. $\angle AOB$ | $\angle ADB$



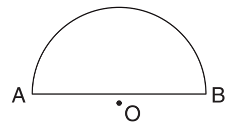
26. Value of point Q | Value of point $2\frac{1}{3}$ away from point P



27. x | y

Circle O has radius 1 unit

28. Number of units in area of circle O | Number of units in circumference of circle O



29. $\overline{AB}$ | $\overset{\frown}{AB}$

2.2 pounds in 1 kilogram

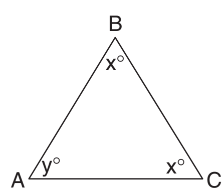
30. Number of kilograms in 50 pounds | Number of pounds in 50 kilograms

$T > x$

$y < m$

$x < y$

31. $x + y$ | $T + m$



32. AB | BC

$abc > 0$

33. $c(a + b)$ | abc

$$0 < a < b < c < d$$

34. $\frac{c}{d}$ $\qquad$ $\frac{b}{a}$

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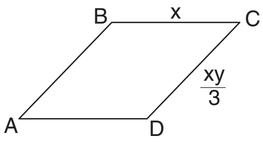
35. $y^2 + 25$ $\qquad$ $(y - 5)(y - 5)$



ABCD is a rhombus.

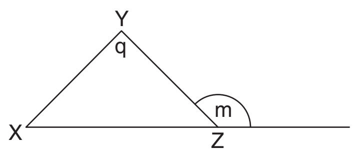
36. x $\qquad$ y

$$m^2 - 5m - 24 = 0$$

37. 10 $\qquad$ m

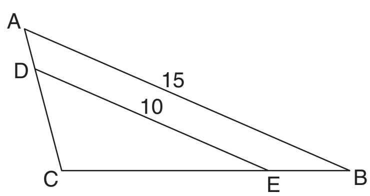
Above Average to Difficult

38. Number of degrees in the interior angles of a pentagon $\qquad$ 500°



$\overline{XY} = \overline{YZ}$

39. q $\qquad$ $2m - 180$



$\overline{AD} = 2$ $\quad$ $\overline{CE} = 8$
$\overline{DC} = x$ $\quad$ $\overline{BE} = y$
$\overline{DE}$ is parallel to $\overline{AB}$

40. x $\qquad$ y

41. Circumference of circular region C diameter d $\qquad$ Perimeter of rectangular with region R with length 2d and width d

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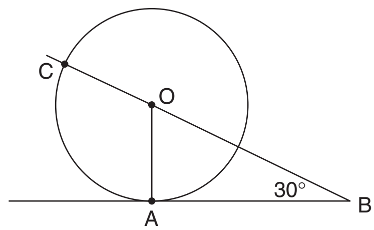
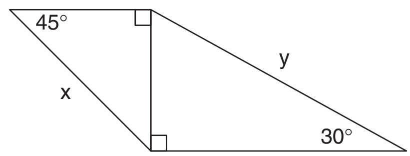
30¢ per pound tea X and 40¢ per pound tea Y were mixed to give 10 pounds of tea costing \$3.60

42. Number of pounds of tea X $\qquad$ Number of pounds of tea Y

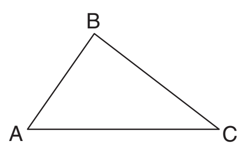


O is center of circle
AB is tangent to circle O

43. $\frac{1}{2}\,\overset{\frown}{AC}$ $\qquad$ $\angle AOB$

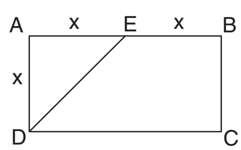


44. x $\qquad$ y

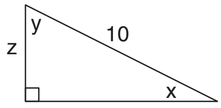


$\overline{AC} > \overline{BC} > \overline{AB}$

45. 60° $\qquad$ $\angle ACB$

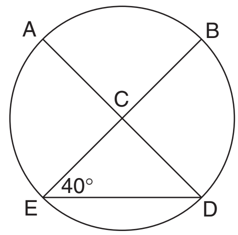


46. $\frac{\text{Area of DEBC}}{\text{Area of rectangle ABCD}}$ $\qquad$ $\frac{2}{3}$



y > 2x

47. 5 | z



48. $\widehat{AB}$ | $\widehat{AE}$

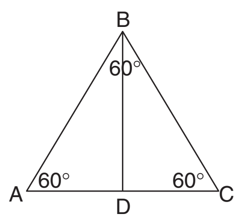
Answers and Explanations for Practice Quantitative Comparison Questions

Easy to Moderate

1. **A.** Because $4\frac{3}{4}$ is equivalent to 4.75, Column A is greater.
2. **B.** Converting each fraction to a decimal (dividing numerator by denominator) gives .82 for Column A and .84 for Column B. A faster way to compare two fractions is to cross-multiply up:

$$\begin{array}{cc} 117 & 121 \\ \frac{9}{11} & \frac{11}{13} \end{array}$$

   The larger product (121) is above Column B, so Column B is greater.
3. **A.** First eliminate the equal values of x from each side, leaving (x/2) in Column A and –(x/2) in Column B. The information centered between the columns indicates that x is positive. Plugging in any positive value for x will result in Column A being positive and Column B being negative. So Column A is greater.
4. **A.** Since ΔABC is an equilateral triangle, ∠ABC and ∠BAC = 60°. So Column A = 120°.



   Looking at ΔCDB, ∠CDB must be less than 120° because ∠BCD already equals 60° and there is still another angle (CBD) in ΔCDB.
5. **C.** The definition of *median* is that it divides the side it intersects into two equal parts.
6. **A.** Since Δ ABC is equilateral, AB = BC. Thus AB + BD must be more than BC alone.

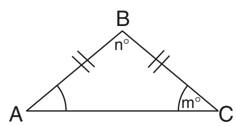
7. D. As the only condition for plugging in values for x and y is that together they must equal 0, the values for x and y may vary. For instance, both x and y may equal 0, in which case the answer would be C. Or x may be 1 and y may be –1, in which case Column A would be greater. Thus the answer is D.

8. B. Plugging in each value for p in column A, if p = +3, then $(3 + 2)^2 = (5)^2 = 25$. Plugging in –3 for p gives $(-3 + 2)^2 = (-1)^2 = 1$. In either case, Column B, 26, is greater.

9. B. The only difference in the two numbers occurs after the decimal points, where .10 (Column B) is greater than .088 (Column A).

10. B. In both columns, the same number, 1, is being subtracted. Therefore, the column that is greater can be determined simply by comparing the "starting" values. The column with the larger "starting" value (the number being subtracted from) will yield the larger remainder. Since $\frac{1}{18}$ is larger than $\frac{1}{19}$, Column B is greater. (That both remainders are negative does not affect the relationship.)

11. D. Since $\overline{AB} = \overline{BC}$, $\angle A = \angle C$. But no information is given for $\angle B$. So no relationship can be determined between *n* and *m*.

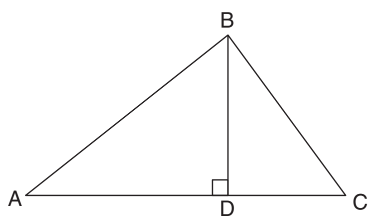


12. B. $5^3 = 5 \times 5 \times 5 = 125$, and $2^7 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 128$.

13. C. The information centered between the columns shows that 6x + 18y = 12. Notice that the quantity in Column A, x + 3y, exactly equals $\frac{1}{6}$ of 6x + 18y. Therefore, Column A equals $\frac{1}{6}$ of 12, or 2. Since Column B equals 2, the columns are equal.

14. D. For xy to equal 0, either x or y must be 0. If x = 0, then y = 4. But if y = 0, then x = 4. There is no way of knowing which is which.

15. D. The length of side AB is determinable by using the Pythagorean theorem, but since DC is not known, BC cannot be determined. Note that you cannot make a determination by measuring.



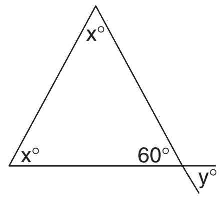
AD = BD = 6, $\angle ADB = 90°$

16. C. $\angle BAD = \angle ABD$, since angles across from equal sides in a triangle are equal.

17. C. Since there are 180° in a triangle and $\angle BDC$ is 90°, the remaining two angles, $\angle DBC$ and $\angle BCD$, must total 90°.

18. A. AB + BC is greater than AC, since the sum of any two sides of a triangle is greater than the third side.

19. **C.** In the triangle, one angle is 60°. Therefore, the remaining two angles must sum to 120° (since the total degree measure in any triangle is 180°). Since the two angles are each x, they then are equal, and each is 60°. y is the vertical angle of 60°. Since vertical angles are equal, y also equals 60°. So x = y.



20. **B.** If a = b and a < c, then the following substitutions make the comparison simpler.

2a	b + c
a + a	b + c

Since a = b, then

a + b	b + c

Now canceling b's from each column leaves a < c.

21. **C.** To solve a/6 = b/4

cross-multiply, giving 4a = 6b

then divide by 2

leaving 2a = 3b

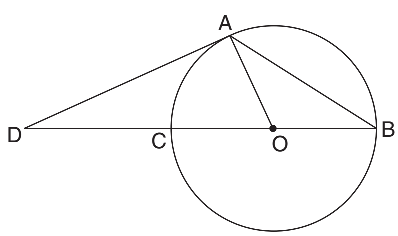
Average

22. **D.** The value for b could be 0, which would make Column A equal to Column B. Or b could be positive, which would make Column B greater than Column A. No relationship can be determined.

23. **A.** Area of circle with diameter 8 is computed by finding the radius, which is half the diameter, and substituting into this equation $A = \pi r^2$. Since the radius is 4, and π is about 3.14

$\pi(4)^2$	Area of square with side 7 is 49
3.14×16	50.24

Answers 24–25 refer to the diagram.



O is the center

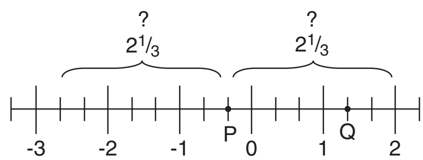
24. C. $\widehat{AC} = 2(\angle B)$, since an inscribed angle is half of the arc it *subtends* (connects to).

25. A. Since $\angle AOB$ is a central angle, it equals the measure of $\widehat{AB}$, and since $\angle ADC$ is outside the circle but also intersects the circle at $\widehat{AB}$, it is less than half of $\widehat{AB}$. Therefore

$\angle AOB > \angle ADC$

Alternate method: The external angle AOB must be larger than either of the remote interior angles.

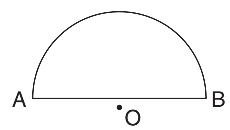
26. D. The value of point Q is $1\frac{1}{3}$. But the value of the point $2\frac{1}{3}$ away from Q may be either $-2\frac{2}{3}$ or 2. So it could be either greater or less than Q. No relationship can be determined.



27. B. The coordinates of point P are (x, y.) Since the x coordinate is to the left of the origin, x is negative. The y coordinate is above the origin, so y is positive. Therefore, Column B is greater than Column A.

28. B. The area of a circle = πr^2. So Column A = $\pi(1^2) = \pi$. The circumference of a circle = $2\pi r$. So Column B = $2(\pi)1 = 2\pi$.

29. B. The shortest distance between two points is a straight line. Therefore, arc AB must be greater than line segment AB.

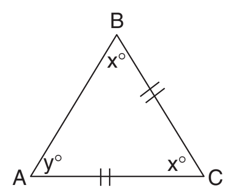


Point O is the center of a circle which contains $\widehat{AB}$.
Point O does not lie on $\overline{AB}$

30. B. Column A = $50 \div 2.2$, and Column B = 50×2.2.

31. B. Since T is greater than x, and m is greater than y, then T + m must always be greater than x + y.

32. D. In a triangle, equal angles have equal opposite sides. Therefore, AB = AC. But no information is given about angle y, and so no relationship can be drawn regarding side BC.



33. **D.** Since $abc > 0$, you could start by plugging in 1 for each of a, b, and c. So Column A will equal $c(a + b) = 1(1 + 1) = 2$; Column B will equal $abc = (1)(1)(1) = 1$. So Column A is greater. Now plug in a different set of numbers such that $abc > 0$, for example, 10 for each of a, b, and c. Now Column A will equal $c(a + b) = 10(10 + 10) = 200$; Column B equals $abc = (10)(10)(10) = 1000$. Now Column B is greater. Since we find two different relationships when we use different values, no definite relationship can be determined.

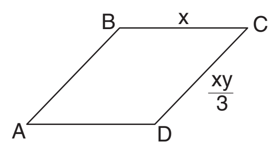
34. **B.** Because a, b, c, and d are each greater than 0, they are therefore positive. In Column A, the denominator is greater than the numerator, so the fraction equals less than 1. In Column B, the numerator is greater than the denominator, so the fraction equals more than 1. Therefore, Column B is greater.

35. **D.** If y is 0, columns A and B each equal 25, and so the columns could be equal. However, if y is 1, then Column A equals 26 and Column B equals 16. No definite relationship can be determined.

36. **D.** Since ABCD is rhombus, all sides are equal. Therefore, $x = (xy)/3$. Solving, first cross-multiply:

$$3x = xy$$

Canceling x's from each side: $y = 3$. However, knowing that y equals 3 tells nothing about the value of x.



ABCD is a rhombus.

37. **A.** First factor:

$$m^2 - 5m - 24 = 0$$

$$(m - 8)(m + 3) = 0$$

Now set each equal to 0:

$$m - 8 = 0$$

$$m = 8$$

$$m + 3 = 0$$

$$m = -3$$

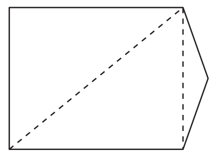
Since both 8 and -3 are less than 10, Column A is greater.

Above Average to Difficult

38. **A.** To find the number of degrees in the interior angles of a pentagon, use the formula $180 \times (n - 2)$, where n is the number of sides. Therefore, $180 \times (5 - 2) = 180 \times 3 = 540$.

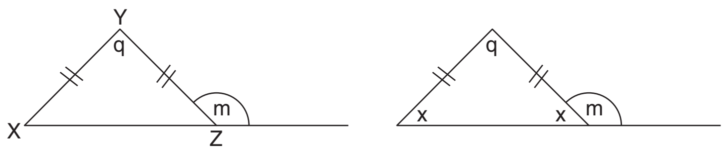
$540° > 500°$

Another method would be to draw the pentagon and break it into triangles connecting vertices (lines cannot cross), as shown here.



Multiplying the number of triangles (3) by 180 (degrees in a triangle) gives the same result, 540°.

39. **C.** Because $\overline{XY} = \overline{YZ}$, their opposite angles are equal. Let's call them each x:



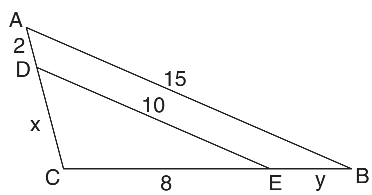
Plugging in any value for x, say 40°, then

$q = 100°$

$m = 140°$

Therefore, Column A = 100° and Column B = 280° – 180° = 100°. The columns are equal.

40. **C.** Since $\overline{DE} \parallel \overline{AB}$, $\triangle DCE$ is similar to $\triangle ACB$. Therefore, because $\overline{AB}$ is 50% greater than $\overline{DE}$, $\overline{CB}$ is 50% greater than $\overline{CE}$, y must equal 4. Similarly, $\overline{AC}$ is 50% greater than $\overline{DC}$, so $\overline{DC}$ must equal 4. So x = y.



41. **B.** In Column A, the circumference of a circle $= \pi d$, or slightly greater than 3d (since $\pi \cong 3.14$). In Column B, the perimeter of rectangle =

$2l + 2w = 2(2d) + 2(d) = 6d$

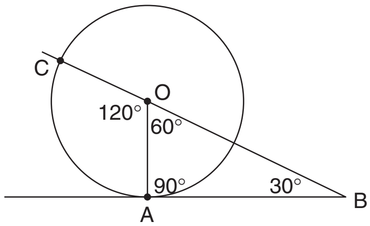
So Column B is greater.

42. **B.** Since \$3.60 is closer to \$4.00, there must have been more 40¢ tea. Or let x equal the number of pounds of tea X, and $10 - x$ equal the number of pounds of tea Y. Then

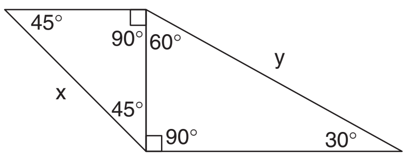
$$30x + 40(10 - x) = 360$$
$$30x + 400 - 40x = 360$$
$$-10x = -40$$
$$x = 4$$

So there were 4 pounds of tea X and 6 pounds of tea Y.

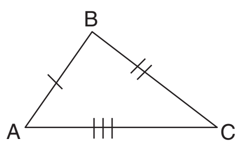
43. **C.** Because AB is tangent to circle O, $\angle AOB = 90°$. Since the total interior degrees of any triangle is 180°, in triangle OAB, $\angle AOB$ must equal 60°. Since COB is a straight line, $\angle COA$ equals 120°. Since a central angle equals the amount of arc it intersects, $\overparen{AC}$ also equals 120°. So ½ $\overparen{AC} = 60°$, and the columns are equal.



44. **B.** Assume that the side shared by each of the triangles equals 1. Therefore, the triangle on the left, a 45° – 45° – 90° triangle, has sides in the ratio of $1:1:1\sqrt{2}$. So $x = \sqrt{2}$. The triangle on the right is a 30°– 60°– 90° triangle, which has sides in the ratio of $1:\sqrt{3}:2$. Therefore, $y = 2$. Column B is greater than Column A.



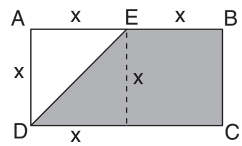
45. **A.** Because $\overline{AB}$ is the smallest side of the triangle, its opposite angle, $\angle ACB$, is the smallest angle. The smallest angle must be less than 60°, because if the smallest angle were equal to 60°, the three angles would sum to greater than 180°, which isn't possible. So Column A is greater.



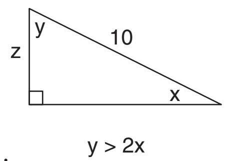
46. **A.** The area of DEBC is ¾ the area of ABCD, or:

$$\frac{\text{area DEBC}}{\text{area ABCD}} = \frac{3 \text{ units}}{4 \text{ units}} = \frac{3}{4}$$

Column A is greater.



47. **A.** If angle y were equal to 2x, then in the triangle, y would be 60° and x would be 30°. In a 30°–60°–90° triangle, z would be half 10, or 5. However, since y is more than twice x, x cannot be 30°; it must be less than 30°. Therefore, side z must be less than half 10, or less than 5.



48. **D.** We have no way of knowing what the measures of the angles of the circle $\angle ACB$ or $\angle ACE$ are. Thus we cannot know the values of $\overset{\frown}{AE}$ or $\overset{\frown}{AB}$.