F2 Early Summer Assignment: MC 02

1. $a(3-b)+b(3-b)=$

   A. $(3+b)(a-b)$

   B. $(3-b)(a-b)$

   C. $(3-b)(a+b)$

   D. $ab(3-b)$

2. Simplify $\dfrac{32a^2b^3c}{24b^2cd}$.

   A. $\dfrac{4a^2b^5}{3d}$

   B. $\dfrac{4a^2b}{3d}$

   C. $\dfrac{3d}{4a^2b}$

   D. $\dfrac{4a^2}{3b^5d}$

3. $\dfrac{5a^2(y-x)}{3(x-y)}=$

   A. $\dfrac{5a^2}{3}$

   B. $-\dfrac{5a^2}{3}$

   C. $\dfrac{5a^2}{3(x-y)^2}$

   D. $\dfrac{5a^2(y-x)^2}{3}$

4. Simplify $\dfrac{x-2}{x+1}\div\dfrac{x-1}{x+1}$.

   A. $\dfrac{(x-2)(x-1)}{(x+1)^2}$

   B. $\dfrac{x-2}{x+1}$

   C. $\dfrac{x-1}{x+1}$

   D. $\dfrac{x-2}{x-1}$

5. Simplify $\frac{y}{x}-\frac{x}{y}$.

A. $\frac{y-x}{xy}$

B. $\frac{y^2-x^2}{xy}$

C. $\frac{x^2-y^2}{xy}$

D. 1

6. If $4c^5d^6 \times P = 3c^8d^2$, then $P =$

A. $\frac{3c^3}{4d^4}$.

B. $\frac{4c^3}{3d^4}$.

C. $\frac{4d^4}{3c^3}$.

D. $\frac{3d^4}{4c^3}$.

7. If $\frac{z}{x+y} = x-y$, which of the following formulas is correct?

A. $x^2 = z - y^2$

B. $x^2 = z + y^2$

C. $y^2 = z + x^2$

D. $y^2 = -z - x^2$

8. Simplify $\frac{2x}{x-1}-\frac{x-1}{x+1}$.

A. $\frac{3x^2+1}{(x-1)(x+1)}$

B. $\frac{x^2+4x-1}{(x-1)(x+1)}$

C. $\frac{3x+1}{(x-1)(x+1)}$

D. $\frac{x^2-4x+1}{(x-1)(x+1)}$

9. $\dfrac{2}{x^2-2x}+\dfrac{1}{x^2+x}=$

A. $\dfrac{3x+2}{x(x-2)(x+1)}$

B. $\dfrac{3x}{(x-2)(x+1)}$

C. $\dfrac{3}{(x-2)(x+1)}$

D. $\dfrac{3}{x(x-2)(x+1)}$

10. Make x the subject of the formula $p(x-1)=q$.

A. $x=\dfrac{p+q}{p}$

B. $x=\dfrac{p-q}{p}$

C. $x=\dfrac{1+q}{p}$

D. $x=\dfrac{-p-q}{p}$

11. If $\dfrac{1}{a}+\dfrac{1}{b}=\dfrac{1}{x}$, then $x=$

A. $\dfrac{ab}{a+b}$.

B. $\dfrac{a+b}{ab}$.

C. $\dfrac{a-b}{ab}$.

D. $\dfrac{a+b}{a-b}$.

12. $(m-n)^2-4(m-n)=$

A. $(m-n)(m-n-4)$

B. $(m-n)(m-n+4)$

C. $(m-n)(m-n+1)$

D. $4(m-n)(m-n-1)$

13. Factorize $4a^2-9b^2$.

A. $(2a-3b)^2$

B. $(2a-9b)(2a+b)$

C. $(4a-9b)(4a+9b)$

D. $(2a-3b)(2a+3b)$

14. Factorize $x^2 - 4xy + 4y^2$.

A. $(x-4y)^2$

B. $(x+2y)(x-2y)$

C. $(x+2y)^2$

D. $(x-2y)^2$

15. $9(x+y)^2 - 4 =$

A. $(9x+9y-2)(9x+9y+2)$

B. $(3x+3y+2)(3x+3y-2)$

C. $(x+y+2)(x+y-2)$

D. $(x+y-4)(x+y-1)$

16. $\frac{(x+y)^2}{9} - \frac{y^2}{25} =$

A. $(\frac{5x-2y}{15})(\frac{5x-8y}{15})$

B. $(\frac{5x+2y}{15})(\frac{5x-8y}{15})$

C. $(\frac{5x-2y}{15})(\frac{5x+8y}{15})$

D. $(\frac{5x+2y}{15})(\frac{5x+8y}{15})$

17. Factorize $x^4 - 16y^4$.

A. $(x^2+4y^2)(x-2y)^2$

B. $(x+4y)^2(x+2y)(x-2y)$

C. $(x^2+4y^2)(x+2y)(x-2y)$

D. $(x^2-4y^2)(x+2y)(x-2y)$

18. Factorize $a^2 - b^2 - ax + bx$.

A. $(a-b)(a+b-x)$

B. $(a-b)(a-b-x)$

C. $(a-b)(a-b+x)$

D. $(a+b)(a-b-x)$

19. $4(x+y)^2 - 12(x+y) + 9 =$

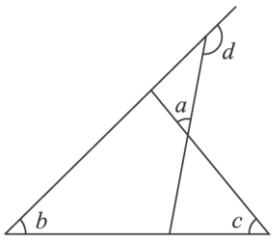
A. $(4x+4y-3)^2$

B. $(2x+2y-9)^2$

C. $(2x+2y-3)(2x+2y+3)$

D. $(2x+2y-3)^2$

20. Refer to the figure above. Express a in terms of b, c and d.



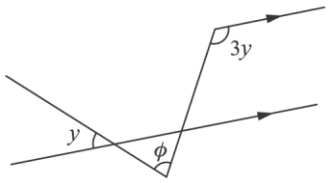
A. $a = b - c + d$

B. $a = -b - c + d$

C. $a = b + c + d$

D. $a = -b + c - d$

21. Refer to the figure above. Express ϕ in terms of y.



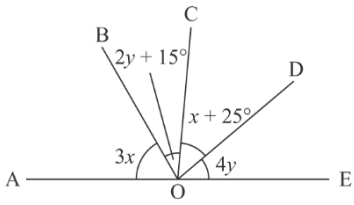
A. $\phi = 180° - 4y$

B. $\phi = 180° - 2y$

C. $\phi = 3y$

D. $\phi = 2y$

22. Which of the following conditions makes AOE a straight line?



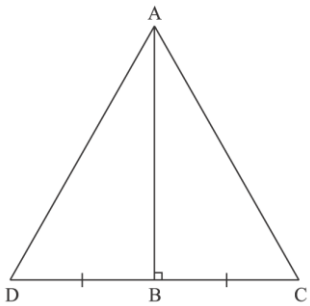
A. $x + y = 90°$

B. $2x + y = 45°$

C. $2x + 3y = 70°$

D. $x + 2y = 80°$

23. Which of the following is the reason for $\Delta ABC \cong \Delta ABD$?



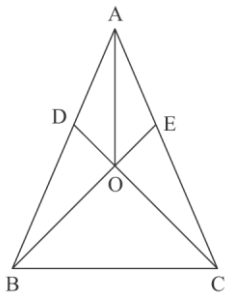
A. A.A.S.

B. A.S.S.

C. S.A.S.

D. R.H.S.

24. In the figure, AB = AC and AD = AE. How many pairs of congruent triangles are there in the figure?



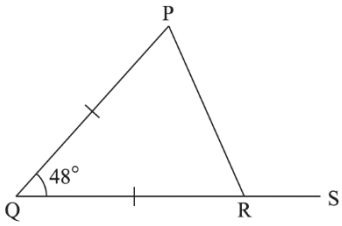
A. 2

B. 3

C. 4

D. 5

25. In the figure below, QRS is a straight line. Find $\angle PRS$.



A. 114°

B. 132°

C. 138°

D. 156°

26. Given that $\Delta PAG \sim \Delta SBQ$, which of the following is/are correct?

I. $\angle AGP = \angle SQB$

II. $\dfrac{AG}{BQ} = \dfrac{PG}{SQ}$

III. $PA \cdot GP = SB \cdot SQ$

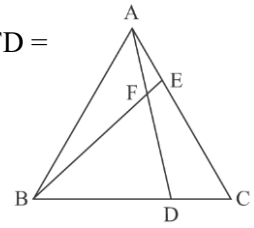
A. II only

B. I and II only

C. II and III only

D. I, II and III

27. In the figure, ΔABC is an equilateral triangle. $CD = AE$ and AD and BE intersect at F. $\angle BFD =$



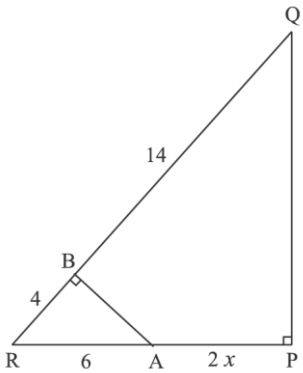
A. $45°$.

B. $50°$.

C. $55°$.

D. $60°$.

28. Refer to the figure below. Which of the following pairs are similar triangles?



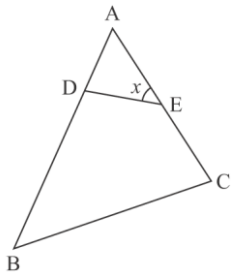
A. $\Delta PQR \sim \Delta ABR$

B. $\Delta RPQ \sim \Delta RBA$

C. $\Delta PRQ \sim \Delta BAR$

D. $\Delta PQR \sim \Delta RBA$

29. In the figure, which of the following cannot prove that ΔADE and ΔACB are similar?



A. $\dfrac{AD}{AC} = \dfrac{DE}{CB}$

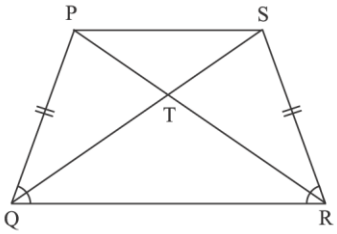
B. $\dfrac{AD}{AC} = \dfrac{AE}{AB} = \dfrac{DE}{CB}$

C. $\dfrac{AD}{AC} = \dfrac{AE}{AB}$

D. $x = \angle B$

30. In the figure, $PQ = SR$, $\angle PQR = \angle SRQ$ and PR intersects QS at T.

Which of the following is/are correct?



I. $\Delta PTQ \cong \Delta STR$

II. $\Delta PQR \cong \Delta SRQ$

III. $\Delta QSP \cong \Delta RPS$

IV. $\Delta PTS \sim \Delta QTR$

A. I only

B. II and IV only

C. III and IV only

D. I, II, III and IV