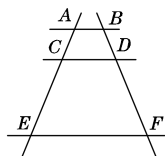


第3章 图形的相似

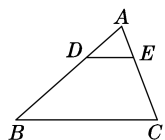
3.2 平行线分线段成比例

1. 如图, 已知 $AB \parallel CD \parallel EF$, $BD:DF=2:5$, 那么下列结论正确的是()



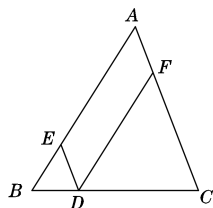
- A. $\frac{AC}{AE} = \frac{2}{5}$
 B. $\frac{AB}{CD} = \frac{2}{5}$
 C. $\frac{CD}{EF} = \frac{2}{5}$
 D. $\frac{CE}{EA} = \frac{5}{7}$

2. 如图, 在 $\triangle ABC$ 中, $DE \parallel BC$, $AD=5$, $BD=10$, $AE=3$. 则 CE 的值为()



- A. 9
 B. 6
 C. 3
 D. 4

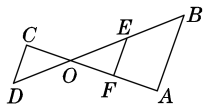
3. 如图, 已知在 $\triangle ABC$ 中, $DE \parallel AC$, $DF \parallel AB$, 在下列各式中, 错误的是()



- A. $\frac{BD}{DC} = \frac{BE}{EA}$
 B. $\frac{BD}{BC} = \frac{AF}{AC}$
 C. $\frac{BE}{EA} = \frac{AF}{FC}$
 D. $\frac{DF}{BA} = \frac{DE}{CA}$

4. 如图, 若 $DC \parallel FE \parallel AB$, 则有()





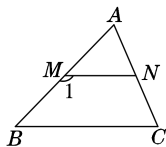
A. $\frac{OD}{OF} = \frac{OC}{OE}$

B. $\frac{OF}{OE} = \frac{OB}{OA}$

C. $\frac{OA}{OC} = \frac{OD}{OB}$

D. $\frac{CD}{EF} = \frac{OD}{OE}$

5. 在 $\triangle ABC$ 中, 已知 $\angle 1 = \angle A + \angle C$, 则下列比例式中成立的是()



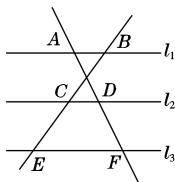
A. $\frac{MN}{BC} = \frac{AN}{NC}$

B. $\frac{AM}{AB} = \frac{AN}{AC}$

C. $\frac{BM}{NC} = \frac{AN}{AM}$

D. $\frac{AM}{NC} = \frac{AN}{MB}$

6. 如图, 直线 $l_1 \parallel l_2 \parallel l_3$, 下列比例式中成立的是()



A. $\frac{AD}{DF} = \frac{CE}{BC}$

B. $\frac{AD}{BE} = \frac{BC}{AF}$

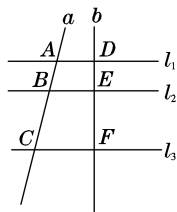
C. $\frac{CE}{DF} = \frac{AD}{BC}$

D. $\frac{AF}{DF} = \frac{BE}{CE}$

7. 如图, $l_1 \parallel l_2 \parallel l_3$, 直线 a, b 与 l_1, l_2, l_3 分别交于点 A, B, C 和点 D, E, F . 若 $\frac{AB}{BC} = \frac{2}{3}$, $DE = 4$,

则 EF 的长是()





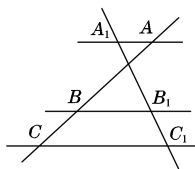
A. $\frac{8}{3}$

B. $\frac{20}{3}$

C. 6

D. 10

8. 如图，直线 $A_1A \parallel BB_1 \parallel CC_1$ ，若 $AB=8$ ， $BC=4$ ， $A_1B_1=6$ ，则线段 B_1C_1 的长是（ ）。



A. $\frac{5}{4}$

B. 3

C. $\frac{16}{3}$

D. 12



参考答案

1. 答案: D

解析: $\because AB \parallel CD \parallel EF, BD:DF=2:5, \therefore \frac{AC}{CE} = \frac{BD}{DF} = \frac{2}{5}, \therefore AE=AC+CE, \therefore CE:EA=5:7.$

故选 D.

2. 答案: B

解析: $\because DE \parallel BC, \therefore \frac{AD}{BD} = \frac{AE}{CE}, \therefore AD=5, BD=10, AE=3, \therefore \frac{5}{10} = \frac{3}{CE}, \therefore CE=6.$ 故选 B.

3. 答案: D

解析: $\because DE \parallel AC, DF \parallel AB,$

\therefore 四边形 AEDF 为平行四边形,

$\therefore \frac{BD}{DC} = \frac{BE}{EA}, \frac{BD}{BC} = \frac{AF}{AC}, \therefore$ A 项、B 项正确.

$\because DF \parallel AB, \therefore \frac{BD}{DC} = \frac{AF}{FC},$

$\therefore \frac{BE}{EA} = \frac{AF}{FC}, \therefore$ C 项正确.

$\because DF \parallel AB, \therefore \frac{DF}{BA} = \frac{CD}{CB}.$

$\because DE \parallel AC, \therefore \frac{DE}{CA} = \frac{BD}{BC}.$

$\because \frac{CD}{CB} \neq \frac{BD}{BC}, \therefore \frac{DF}{BA} \neq \frac{DE}{CA},$

\therefore 选项 D 不正确.

4. 答案: D

解析: $\because DC \parallel FE \parallel AB, \therefore \frac{OD}{OE} = \frac{OC}{OF}, \therefore$ A 项错误; $\frac{OF}{OE} = \frac{OC}{OD}, \therefore$ B 项错误; $\frac{OA}{OC} = \frac{OB}{OD},$

\therefore C 项错误; $\frac{CD}{EF} = \frac{OD}{OE}, \therefore$ D 项正确. 故选 D.

5. 答案: B

解析: $\because \angle 1 = \angle A + \angle C, \angle 1 = \angle A + \angle ANM, \therefore \angle ANM = \angle C, \therefore MN \parallel BC, \therefore \frac{MN}{BC} = \frac{AN}{AC},$ 故 A

项错误; $\frac{AM}{AB} = \frac{AN}{AC},$ 故 B 项正确; $\frac{BM}{NC} = \frac{AM}{AN},$ 故 C 项错误; $\frac{AM}{MB} = \frac{AN}{NC},$ 故 D 项错误; 故选 B.

6. 答案: D

解析: 由平行线分线段成比例可知 $\frac{AD}{DF} = \frac{BC}{CE},$ 故 A 选项不成立; 由 $\frac{AD}{BC} = \frac{AF}{BE}$ 可知 B 选项不成立;

由 $\frac{CE}{DF} = \frac{BC}{AD}$ 可知 C 选项不成立; D 选项成立.



7. 答案: C

解析: $\because l_1 // l_2 // l_3, \therefore \frac{AB}{BC} = \frac{DE}{EF}$. 又 $\frac{AB}{BC} = \frac{2}{3}, DE=4, \therefore \frac{2}{3} = \frac{4}{EF}$, 解得 $EF=6$.

8. 答案: B

解析: $\because A_1A // BB_1 // CC_1,$

$$\therefore \frac{B_1C_1}{A_1B_1} = \frac{BC}{AB}.$$

$$\because AB=8, BC=4, A_1B_1=6,$$

$$\therefore \frac{B_1C_1}{6} = \frac{4}{8}, \therefore B_1C_1=3.$$

